THE COTTAGE GARDENER,

COUNTRY GENTLEMAN'S COMPANION,

AND

POULTRY CHRONICLE.

A JOURNAL OF HORTICULTURE, RURAL AND DOMESTIC ECONOMY, BOTANY, AND NATURAL HISTORY.

CONDUCTED BY

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THE FRUIT AND KITCHEN GARDENS, by Mr. J. Robson, Gardener to the late Earl Cornwallis, Linton Park; and Mr. T. Weaver, Gardener to the Warden of Winchester College.

THE FLOWER GARDEN, by Mr. D. Beaton, late Gardener to Sir W. Middleton, Bart., Shrubland Park.

STOVE AND FLORISTS' FLOWERS, by Mr. T. Appleby, late of Victoria Nursery, Uxbridge.

THE GREENHOUSE AND WINDOW GARDEN, by Mr. R. Fish, Gardener to Colonel Sowerby, Putteridge Bury, near Luton.

GENERAL GARDENING and WOOD-CRAFT, by Mr. T. Appleby, late of Victoria Nursery, Uxbridge.

ALLOTMENT AND GARDENING CALENDAR, by Mr. Keane.

POULTRY-KEEPING, by Mr. J. Baily, Rev. W. W. Wingfield, E. Hewitt, Esq., and other well-known contributors.

BEE-KEEPING, by H. Taylor, Esq.; T. W. Woodbury, Esq., "A Devonshire Bee-keeper;" "B & W.;" and Mr. S. B. Fox.

HOUSEHOLD ARTS, by the Authoress of "My Flowers," and others.

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TO OUR READERS.

It was a very cruel thing of Fanny to say of her cousin Tom when he joined the Bullet-cum-Target Rifles, that she was sure he was somewhat like Nelson; "for, as the last thing that Nelson did was to die for his country, so it was the last thing that Tom intended to do."

Now, we consider Tom was quite right in postponing such intention, if upon no other ground (and we do not intend to add to his cousin's insult), that a live donkey is worth more than a dead lion. Neither do we wish you, our Readers, to apply these pokes to us—The Cottage Gardener—when we say that the last thing we intend to do is to die for the benefit, or for the pleasing, of any one. And we have been led to make this positive declaration, because we have received one or two letters recently containing advice, which, if we followed, we certainly very soon should be in the plight of the moribund lion, and certainly should not be like Nelson—for we should not die for our country, but to please two elderly ladies, who write as follows:—

"Mrs. Godarkly, who lives at Poke-in-the-Wolds, wishes that the Editors of The Cottage Gardener could devote a few columns to jokes and other facetiæ; she could then have from it additions to her scrap book, as she now has from the *Poke-in-the-Wold Chronicle*—a paper of which 400 copies are sold weekly,"—a circulation we should soon reach if we adopted the suggestion. This, however, we cannot do, if for no other motive than fearing to injure the circulation of our friend and neighbour Punch.

The Hon. Mrs. Dashby Covers informs us "confidentially," "Though *I* am delighted with every page of The Cottage Gardener, yet the Colonel and my two sons wish that it would devote about half of its pages to rural sports. The Colonel says he would rather have had a portrait of *Thormanby* than of *Tredescant!*"

Really, ladies, we cannot oblige you: we must continue without jokes, and we must refrain from trespassing upon the ground of neighbours whose readers delight in buffalo hunting and pugilism. But, though we cannot adopt your suggestions, we will endeavour to go on improved and improving. We have made arrangements for more numerous illustrations in every department; and though we have to sorrow over able hands and heads and hearts that are gone down from our side, yet others have come forward which we are pleased and proud to find active and energetic to sustain us.

To those who are contented with us as we are, we can promise, so far as human power can pledge, that they shall observe in our pages fresh vitality. We so promise, not because we rely upon our own powers, nor because we know the unweakened aid we shall receive from the good men and true around us, but because we find that those we would have with us still bid us "God speed," even after they have migrated to the antipodes. A letter from Tasmania has enclosed a sprig of Rosemary, with this sentence in a handwriting our Readers often have benefited by—

"There's Rosemary—that's for remembrance."

Such gleams as these thrown across our path make us pass on to it again cheerily.

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WOODCUTS.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	APRIL 3—9, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
3	Tu	Salix fragilis, &c.	30.092—30.058	65—41	S.W.	—	32 af 5	35 af 6	14 4	12	3 13	94
4	W	Ophrys aranifera.	30.097—30.079	68—36	W.	—	30 5	36 6	30 4	13	2 56	95
5	Th	Valeriana locusta.	30.104—30.059	69—33	W.	—	28 5	38 6	rises	☺	2 38	96
6	F	Good Friday.	30.137—30.029	77—36	S.W.	—	25 5	40 6	11 af 8	15	2 20	97
7	S	Prince Leopold born, 1853.	29.931—29.749	79—46	S.	—	23 5	41 6	40 9	16	2 3	98
8	Sun	Easter Sunday.	29.836—29.632	60—50	S.W.	.10	21 5	43 6	3 11	17	1 46	99
9	M	Easter Monday.	29.595—29.510	58—46	S.W.	.02	19 5	44 6	morn.	18	1 29	100

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 56.2° and 36° respectively. The greatest heat, 78°, occurred on the 3rd, in 1848; and the lowest cold, 21°, on the 6th, in 1851. During the period 130 days were fine, and on 101 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Trench all spare ground, run the hoe between all crops that are above ground, and attend to the destruction of snails and slugs. *Beans* (*Broad*), earth up the advancing crops when the ground is moist. *Borecole*, sow the main crop. *Broccoli*, sow a small quantity of all the principal sorts. *Brussels Sprouts*, sow the main crop. *Cauliflower*, prick out the early sown, and make another small sowing. *Celery*, sow seed for late crop; those pricked out in frames, or on heat, to be supplied with plenty of air and water in fine dry weather. *Dwarf Kidney Beans*, sow in heat, to be gradually hardened off before transplanting into the open ground. *Herbs*, sow seed of the annual sorts, or of such as do not supply cuttings or admit of being divided. *Nasturtiums*, sow in heat, to be transplanted, and used for pickling purposes. *Gherkins* to be raised in heat. *Leeks* and *Onions*, sow immediately, if not done last month. *Potatoes*, plant. *Radishes*, thin out advancing crops, and sow the Turnip-rooted kinds. *Skirret*, *Salsafy*, and *Scorzonera*, to be sown, if not done before. *Tomatoes*, pot off as they require it, to become strong plants by turning-out time. If blanched *Sea-kale* is required, place inverted flower-pots over the crowns in the open ground, covering them with soil, or any other such substance, to exclude light and air. *Spinach* sow, and thin the early sown. *Turnips* sow.

FLOWER GARDEN.

Plant and cut Box *edgings*. Patches of some of the more showy of the *hardy annuals* to be sown in any of the vacant spaces in the herbaceous beds and between the clumps along the borders in the shrubbery. The following are useful for that purpose:—African and French Marigold, Erysimum, *Clarkia pulchella*, *Collinsia bicolor*, Eschscholtzia, *Nemophila insignis*, double Poppies, purple and white Candytufts, Mignonette, Sweet Peas, &c. *Pansies*, sow seed in pans. *Pinks*, top dress the beds, and pot off *Carnations* and *Picotees*. All recently *transplanted trees* and *shrubs* to be securely staked. Finish transplanting *Roses* as soon as possible. The *turf* to be swept, well rolled, and made firm, to be in readiness for mowing. Plant *Tigridia pavonia*. Plant out autumn-sown *biennials* and *perennials*.

FRUIT GARDEN.

Finish *grafting* and heading down fruit trees; mulch and stake all recently planted. *Disbud* Peach and Apricot trees, to be done a little at a time and often. *Fruit trees* may still be *planted* if they have been taken up for some time; but planting at this season should be resorted to only when it is impossible to do it before. Finish *pruning* and *nailing*, and protect wall trees when the blossoms begin to expand.

GREENHOUSE AND CONSERVATORY.

As a general rule it is advisable to shift Heaths and other hardwooded greenhouse plants after they have done flowering, and have commenced a fresh growth; but the operation may be performed with advantage at any season when the roots are making an unforced growth. Care to be taken before potting that the old ball is sufficiently moist, for if potted in a dry state it will be impossible afterwards to moisten it properly without saturating and souring the new soil. A succession of Achimenes, intended to flower later in the autumn, to be placed in heat. Attention to be paid to the Liliums by giving them a liberal supply of water, and a top dressing of sandy peat and decomposed cowdung.

PITS AND FRAMES.

Young *cuttings* of bedding-out plants to be potted off as soon as they are sufficiently rooted, and *seedlings* as soon as they can bear handling. Pot seedlings and cuttings of half-hardy climbers that will be useful and ornamental to cover bare portions of the walls or trellis-work. The following are recommended for that purpose:—*Tropæolum Canariense*, Cobœas, Maurandyas, Lophospermums, Calampelis; when potted off to receive a gentle bottom heat and careful attention, to make quick growth, as no time at this season must be lost to forward young stock. The shrubby *Calceolarias*, if well established, may be turned out into a turf-pit, or any other such structure, where they can be protected at night from frost and cold winds. It is necessary to prepare them for the change by previously exposing them to sun and air, with as much freedom as is consistent with their safety—that is, as the weather may permit. W. Keane.

THE HORTICULTURAL SOCIETY.

There is no diminution in the accession of Fellows to the Horticultural Society. On the 27th inst., a Meeting was held at the house of the Society of Arts, John Street, Adelphi, Earl Ducie in the chair; when fifty-one new Fellows were elected, including Miss A. G. Burdett Coutts, Countess of Ducie, Lord Moreton, Lady C. Moreton, Lady M. Beresford Hope, A. J. B. Beresford Hope, &c.

The works at Kensington Gore are progressing rapidly. At present they are entirely under the direction of the Royal Commissioners, and consist in preparing and levelling the ground before being handed over the Society, under whom the plan of the garden is to be carried out.

At Chiswick the greatest activity prevails. The old collection of fruit trees has been thoroughly pruned, and every tree is in the course of being fresh labelled. A collection of 115 varieties of the new Belgian Pears, presented by Mr. Hogg, all of which are in a bearing state, have been planted at distances of ten feet apart in the enclosure, where Ewing's glass wall now stands. One hundred and fifteen varieties of Peas have been sown for trial in the kitchen garden, and these will be followed by all the sorts of Broccoli, Borecoles, Savoys, Beans, and Kidney Beans, of the last of which there will be not less than 80 varieties. Preparations are now being made for proving 118 varieties of Cucumbers.

In the large conservatory many of the duplicates of the inferior sorts of Grapes have been removed, and their places occupied by new varieties; others have been regrafted, and ere another month has passed there will be nearly 100 distinct varieties of Grapes in this house. The orchard-house is completely filled with young plants of Peaches, Nectarines, and Apricots, numbering in all about 100. Some of these are planted out in the borders, but the

greater number are in pots, and are intended to be grown on the "rod system." The old range of Pine-pits has been cleared out, the party walls removed, and an entrance made by a door at the back. These pits, now forming one uninterrupted range, are filled with Vines in pots, which are being forced for the purpose of testing their adaptability for this mode of cultivation. Several alterations have been made in the means of heating where it was found to be defective, and the whole place has an air of activity and vitality about it, which it has not had for many years past.

Presentations to the collection of fruit trees are pouring in on all hands. There have already been added, 27 Apricots; 44 Peaches; 24 Nectarines; 140 Plums; 136 Cherries; 63 Vines; 120 Pears; 29 Currants; 23 Raspberries; and 12 sorts of Nuts. These and the vegetables have been contributed as follow:—

Adams & Co., Brentford—25 Peaches; 15 Nectarines; 7 Apricots; 2 Plums; and 4 Cherries.
Batt, Rutley, & Silverlock, Strand—3 Peas; 4 Cucumbers; 6 Broccolis.
Butler & McCulloch, Covent Garden—11 Cucumbers; 10 Broccolis.
Carter & Co., Holborn — 8 Peas; 3 Beets; 7 Cucumbers; 7 Broccolis, besides an immense collection of flower-seeds.
Charlwood & Cummins, Covent Garden—11 Peas; 11 Cucumbers; 4 Broccolis.
Cuthill, J., Camberwell—3 Cucumbers; 1 Melon; 1 Celery.
Dean, W., Bradford—1 Cucumber.
Dickson, J., & Co., Chester—2 Cucumbers.
Dillistone & Co., Sturmer—1 Pea; 1 Cucumber.
Donald & Son, Woking—3 Vines: 6 Cherries; 2 Plums; 2 Apricots; 6 Peaches.
Fraser, J. & J., Lea Bridge Road—12 Plums; 4 Cherries.
Fraser, Richardson, & Goad, Bishopsgate Street—3 Cucumbers; 3 Broccolis.
Garaway, Mayes, & Co., Bristol—29 Currants; 2 Apples; 6 Plums; 1 Peach; 1 Apricot; 4 Vines.
Hogg & Wood, Coldstream—2 Cherries.
Hurst & McMullen, Leadenhall Street—7 Peas; 18 Cucumbers; 2 Beans; 5 Broccolis.
Glendinning, R., Turnham Green—2 Apples; 4 Pears; 13 Plums; 5 Cherries; 1 Vine.
Ivery & Son, Dorking—1 Vine; 1 Lettuce; 1 Celery.
Ivery, Peckham—1 Lettuce; 1 Celery.
Jackman & Son, Woking—3 Nectarines; 2 Apricots; 4 Cherries; 1 Plum.
Lane & Son, Berkhampstead—3 Vines; 1 Cherry.
Lee, J., & Co., Hammersmith—9 Cherries; 15 Plums; 6 Vines; 1 Broccoli.
Low & Co., Clapton—15 Cherries; 2 Plums; 7 Peaches; 1 Nectarine.
Masters & Son, Canterbury—1 Cucumber.
Milne & Co., Vauxhall—4 Grapes; 1 Currant.
Moore, T., Chelsea—1 Pea; 10 Cucumbers.
Nutting & Son, Barbican—6 Peas; 2 Beans; 1 Broccoli.
Osborn & Sons, Fulham—10 Cherries; 12 Plums; 10 Vines.
Rivers, T., Sawbridgeworth—19 Cherries; 22 Plums; 21 Raspberries.
Rogers, J., Chelsea—1 Cucumber.
Southby, C., Clapham—2 Cucumbers; 2 Melons.
Sutton & Sons, Reading—13 Peas; 7 Cucumbers; 1 Beet.
Tiley, E., Bath—4 Cucumbers.
Turner, C., Slough—15 Peas; 21 Cucumbers; 2 Nectarines; 1 Apricot; 3 Cherries; 6 Plums.
Veitch, Jas., jun., Chelsea — 15 Plums; 11 Cherries; 2 Peas; 2 Cucumbers; 13 Broccolis.
Veitch & Son, Exeter—2 Apricots; 4 Nectarines; 5 Peaches; 2 Cherries; 1 Plum.
Vilmorin, Andrieux, & Cie., Paris—48 Haricots; 7 Sugar Peas; 29 Cabbages and Borecoles.
Wild, T., Ipswich—2 Cucumbers; 1 Melon.
Wood & Ingram, Huntingdon—7 Cucumbers.

In addition to these there have been numerous and extensive presentations of flower-seeds, florists' flowers, and bedding plants from other nurserymen and florists, which we shall enumerate at length when the collections are completed. What we have already mentioned is sufficient to show that the interest the public take in the maintenance of the usefulness of the Society is as great as ever it was; and that the garden at Chiswick is still regarded as the place where experimental horticulture is to be carried on.

The Society is making arrangements, we believe, for sending out a plant-collector.

BEDDING PLANTS.

No sooner said than done, or rather no sooner done than up it comes. Three weeks back in the midst of cold, piercing winds, we cast our net at a venture, and up came the—what would you think?—the *Trentham Scarlet* Geranium, which had been so luckily proved at the Crystal Palace, in 1858; and if J. A. Summers, of Howard Park Nursery, near the Crystal Palace, has the good luck to be able to supply all comers with it next May and June, death and oblivion will fall assuredly on *Tom Thumb* in a very few years.

There is no memorandum at Trentham respecting that *Trentham Scarlet* Geranium, else we should have heard of it ere this time; and as another well-known breeder has put in a claim for the honour of being the raiser of the Crystal Palace plant, the best plan would be to give up the honour on both sides, and call the kind *the Crystal Palace Scarlet*. But no man has a right to change a name, not even the name of a weed. I do not suggest the change, therefore, merely from being a public writer on bedding plants, but for the convenience of those for whom I write, to go on saying "*the Crystal Palace Trentham Scarlet*," or "*Crystal Palace Shrubland Dwarf Scarlet*," for ever, would be monstrously plaguey. After this I shall call it in The Cottage Gardener, the *Crystal Palace Scarlet*, unless a majority of the readers vote against me.

It was in the autumn of 1858, that I first saw it at Sydenham. I knew it in a moment, and asked the men about it, but none of them cared to tell me, till I reached the top of the Rose Mount, and there it was again. *Tom Thumb* was also all over the garden at the same time. The man on the Rose Mount told me they were trying it against *Tom*. "But how did you find it out?" he asked. "I suppose," said I, "it is because you put it out in different parts of the garden," and that was all that passed. But to tell the plain truth, it struck me at the time that the Crystal Palace gardeners wished to keep the plant a kind of secret, and to make people's mouths water at the supposed superiority of their *Tom Thumb* at the Crystal Palace, through their superior skill in managing it; but that could not hold out long, as there was more than one person in the secret.

In 1859, or the beginning of last year's bedding-out, I made up my mind to fathom out the depth of that secret; and so I did, and spoke of it in these pages. The last time I saw Mr. Eyles was that day in last autumn. He showed me the propagation-department, and all the *Tom Thumb*-beds were then full of this *Trentham Scarlet*, and Mr. Eyles told me then that they would never use *Tom* again; and at this distance of time, I can see it in masses round the Araucarias, and *Lobelia speciosa* edged every one of the beds in my mind's eye, as vividly as no other Geranium ever was in my eyesight; and the moment I saw Mr. Summers's advertisement about it, I ordered a dozen for the Experimental Garden. Then we shall have *Trentham Scarlet*, *Crystal Palace Scarlet*, and *Shrubland Dwarf*, under two tallies.

The *Dandy* Geranium is a constricted sport from the Cape species, called *Grossulariæfolia*, or the Gooseberry-leaf scarlet, and it is the only one in the whole race which will not always give the original from a sporting branch. *Dandy* is variegated, and when it runs into plain leaf, or sports back as we say, the green is not the true *Grossulariæfolia*, nine times out of ten. "A constricted sport" is one in which all the parts of a plant are on a much smaller scale, and the constitution is reduced below one-fourth of the strength of the original. Yet *Dandy*, the very smallest of all the little Geraniums, makes capital standards on their own roots. I have had scores of them in my day. I have bedded them in little terrace-beds, and in children's gardens, and everybody admired them, and I would advocate the pincushion-beds of *Dandy*, which are to come into fashion from Mr. Eyles's doings, to be one-third of standard *Dandies*, one-third *Dandies* not standards, and one-third *Lobelia speciosa*, from cut-

tings. A circular bed six feet in diameter, and so planted at the Crystal Palace last year, barring the standards, was more talked about than any of their big scarlet-beds. These standards looked very much like standards of the tree Violet.

Young plants of *Lady Plymouth* are the next best substitute for *Dandy;* neither of them give flowers of any account, their sole beauty lies in their variegation. Young spring cuttings of the variegated *Prince of Orange* are the next best turn to imitate *Dandy.* Indeed, the three kinds, with the blue little *Lobelia speciosa* as above, would make a pretty pincushion. The silvery whiteness of the three contrast beautifully with the dark blue of the Lobelia. The dwarf variegated Geraniums, with yellow, purple, and scarlet in the leaves, as the *Golden Chain,* the *Queen's Favourite,* and all such, ought to be kept by themselves for mixtures, and not to be mixed with *Dandy, Lady Plymouth,* or variegated *Prince of Orange,* as the two strains would rather hurt each other by contrast.

Christine makes an admirable edging to a bed of scarlets, or a row in a ribbon-border, or a bed by itself. It is the best of the strain of *Lucia rosea.* I have grown it for the last four years from a seedling of my own; the one I called *Victoria Rose,* and which I cancelled in favour of Mr. Kinghorn's *Christine.* On a ribbon it should come next row after *Golden Chain,* not in front of it; but the plants should be small, and *Harkaway* should follow in the next row behind it: then a row of *Baron Hugel;* then *Aurea floribunda* Calceolaria, and *Tom Thumb* behind; *Lady Middleton* next; then *Cottage Maid,* or *Compactum,* or *Punch;* but *Cottage Maid* would be best, on account of its horseshoe leaves. But in front of the *Golden Chain* there should be nine or ten inches of *Lobelia speciosa,* and six inches of young *Cerastium tomentosum* next the walk. Then, if the ribbon-border is wider than would take in all these rows, plant another row of the old purple *Zelinda* Dahlia; then a row of dwarf white *Zelinda;* and last of all a row of the dwarfest of the variegated Dahlias.

Generally, all Dahlias have hitherto been planted on the model of the florists—that is, without heads, or tails, or variation, or effect; but now that we of The Cottage Gardener have converted our "Florist Lords" to the fashions of the fair, who before could never perceive variety, or contrast, or combination in "a regular uniform mixture," we may go on and plant Dahlias as on ribbon-borders—a row of each colour, beginning with the lowest in front, and each succeeding row rising in a regular gradation up to five feet. Then six or seven kinds, in as many rows and colours, would give more effect than six or seven score on the "uniform mixture" plan and the model of the old Tulip-beds, which model was invented, probably, to puzzle the unwary. The old florists delighted in hidden mysteries; but the march of intellect is now, happily, "forwards fast," and we must keep up with it side by side with our very best and next-door neighbours the florists.

Verbenas will never look well in ribbon-lines except by themselves—only in the first row where any very dwarf kind would do, as their style of growth is so different from the Geraniums, and it is not easy to work Petunias in lines to correspond with Geraniums either; but plenty of hands and good trainers could do them both, yet the style of the ribbon would not be the first of the fashion. *Diadematum* Geraniums, however, do very well in the second or third row of a Geranium ribbon-style.

A friend of mine has had the third row of *Diadematum rubescens* for the last seven or eight years, with *Mangles' variegated* closely trained on both sides of it; then scarlets, pinks, and cerise, and variegated kinds of Geraniums here and there among them.

What is most wanted now is a colouring for such as have no good flowers of their own, as *Golden Chain* and *Lady Plymouth.* The colouring would need to come from similar-habited plants. Get a seedling very near to the leaf, looks, and habit of the *Golden Chain,* and plant them plant for plant alternating in the row, or in a row close in front or just behind the *Golden Chain,* so as to appear but one row after all, and the arrangement is done; but recollect, neither a green leaf nor a horseshoe leaf will do.

Brilliant comes the nearest to what I mean, and there is a second kind of *Brilliant,* half very pale green, and half variegated leaves, which would do tolerably well if the plants were struck now, or were very small at turning-out time; but the true *Brilliant* is too much white, and by the middle of August the white would drown the gold colour completely. There is a *Minimum* Geranium which is to be tried for this effect with the *Golden Chain,* this season, at the Experimental, and if it answers it will not be put under a bushel,

I once raised a Fuchsia that would never rise but creep along the ground like a Verbena. I also saw the first seedling which made the Weeping Larch, and it went exactly like that Fuchsia; it came in a bed of seedlings in the nursery of Mr. Godsal, at Hereford, and it ran along on the surface of the ground like a Strawberry-runner. Now, in these days, when so many are breeding and cross-breeding, and getting up all manner of seedlings, what I would advise would be to take firm hold of any seedling that went out of the common run, and see whether it would not put us on a new scent, or enable us to mend our ways, by making it subservient to some of our present fancies. Something strange, or out of the common, might thus be raised to make *Lady Plymouth* florid as a Rose in the front of a ribbon-border; but I have not seen anything yet that I should willingly put that way, and yet that very lady was the first which fixed that fancy in my noddle. Four years back, there was a bed of *Lady Plymouth* in the Experimental, not a large bed. It will never do in large masses. One day some visitors were expected, some branches of the family, and some one unbeknown to us—to me at any rate—went and illustrated the bed of *Lady Plymouth* with cut trusses of *Tom Thumb,* and, if you believe me, the illustrations were done with such taste and judgment—just the right balance of colour, that for a day or two the bed was charming to look upon. If ever I saw a painted lady, that was one indeed, and I never could get the effect out of my head to this day. Yet, if you recollect, the plan is not new. We put certain Verbenas in beds of Cherry-pie, to give double the bloom of Heliotropes, and a bed of large plants of the Rose-scented Geranium (*graveolens*), the mother of *Lady Plymouth* was one mass of bright scarlet blooms of Verbena *Defiance,* but that would not do near a walk, only in some corner far off, where one wanted a bit of colouring at haphazard.

We must be all nodding in this country, else why should we not find out varieties and variations from seeds like continental folks from whom we receive fresh batches every year, such as they are? Just look over the seed lists of this spring, and see what I mean. Of mixed rows, the very best is still that which has been done for years, by Mr. Scott, of the Crewkerne Nurseries, in the west of England, I mean the front row of a ribbon-border, with the original *Verbena melindris,* which creeps low on the surface. *Lobelia speciosa,* or any of the freer seedlings of *Lobelia erinus,* of which *erinoides* counts three or four; *racemosoides* of the florists—one at all events; and *racemoides* of the cross-breeders, over a dozen kinds; and the variegated Alyssum, all mixed, plant for plant, along the first row. Mr. Scott offers the variegated Alyssum under *Koniga maritima,* like some others in the trade; but Alyssum is the right name, the plant being a constricted sport; and all such sports deviate, botanically, as much from their parents as our early Cabbages do from the native weeds whence they sprang; but we should not encourage false names like this, which were founded on misconceptions. But to make new plants should be the ambition of the young gardener, and a wide field for

experiments is re-opened by the writer on "The Science of Gardening," at p. 400 of our last volume. But why do not the pomologists try that system to improve their desserts?

If the Laburnum and the Cytisus united their blood in the formation or scar at the edges of the wounds, and the scar was from the wood of two-year old shoot or upwards, there is nothing known to us why such a scar should not be ripe and fruitful of buds. Then it follows, that if you or they were to graft three, four, five, or more, year old grafts of the *Ribston Pippin* on equally old or older branches of the *Court-pendu Plat*, and the growth of the present buds were after that hindered, so as to force the scars at the junction ultimately to throw up a shoot, the result would be a cross superior to pollen fertilisation. Or if you were to splice the footstalks of two leaves—say, Gloxinias or *Farfugium grande*, and the variegated or plain Coltsfoot of our own fields, put them in for cuttings, root the two, and unite them by the same means, and when you get a root-stock, cut away the leaves and force up buds from the union of the spliced parts. And where is there an end to such experiments? but we are all nodding, and some foreigner will make a fortune by this splicing, and we shall, open-mouthed, say what a simple thing it is after all. D. Beaton.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(*Continued from page* 395, *Vol. XXIII.*)

FEEDING THE COW.

This should be done not less than six times a-day, and practice will enable any one to understand how much an animal will eat; but though all waste must be strictly guarded against, still there will be a little refuse hay or coarse green meat left in the feeding-rack or trough, which the cow will not eat. If this is not much, do not stint her, so as to compel her to eat all this, as she will only do so when severely pressed by hunger; but remove it every time you feed her, and so regulate the quantity that not more than one-tenth, or at most one-sixth, of the hay given her be wasted. Of course, all smaller food she will eat up wholly; and at seasons when hay is dear, it will pay to have it cut into chaff, and the latter mixed with such other food as is given to cows. Brewers' grains, malt dust, or bran are all good in their way; but much depends on the quality of the milk wanted. If quantity be the object, make arrangements with some brewer to supply so many grains weekly, and, if possible, have them fresh; but they will keep well if packed very tight in an old cask with the head open; stamp them well in, and cover them over at top with something to keep out the air, and they will remain fresh and sweet for several weeks. About 2*s.* 6*d.* per quarter is a fair price; but, like other things, this varies. Malt dust is more for improving the quality of the milk than for increasing the quantity. It ought to be wetted and mixed with the cut hay, and if sweet the cows will soon become fond of it. Bran ought also to be dampened a little and given the same way; but as these things will not be given at every meal, it is prudent to make a rule to give the cow the food she most prizes at the time she is milked. Most cows look for being fed at this time; and she might as well have the best food at this time as any other. It is hardly necessary here to say that brewers' grains increase the milk most of anything; but it is very thin, and does not make much butter. Those who keep cows for supplying districts with milk alone usually give them largely of grains, which, as before stated, increase the quantity very much, giving rise to the idea that it has been watered after milking; whereas it is the feeding of the cow that often causes it to be so thin. In summer the green food will render needless any other stimulant, but the milk will be good then. In winter, however, something in addition to hay will be wanted; and as it is better not to begin the Mangold Wurtzel until January or February, when it has sprouted a little, some other food must be given. Those who want to have a rich milk may give oil-cake in a small quantity daily; but in a general way the Swede Turnips, in addition to brewers' grains, malt dust, or bran will be sufficient; and the cheapest and best of these may be given in the required quantity at the fitting time. The routine of the feeding may be thus:—Two meals at milking times, to be of cut hay and the other mixture mentioned above; once Swede Turnips or Mangold Wurtzel, and twice hay; with now and then a little straw, which they will eat when not given them in regular course. Plenty of good water must be within their reach at all times, and the yard well littered with straw or fern; and in winter an occasional run out in a field or lane for an hour or two to exercise herself will be beneficial. Kind treatment will always insure a reciprocal feeling on the part of a cow; but do not teaze her and learn her improper tricks by handling and seizing her by the horns. The playful wrestling between a mischievous boy and an animal often teaches the latter what it was not aware of before—its own strength; and it sometimes turns its superiority to anything but an agreeable purpose; as a cow, unlike a dog, may be spoiled with handling, though, of course, a certain amount of kind treatment is not only advisable but essential to success. The shed having a place to fasten the cow up by the neck, she may then be milked at all times, and all short food given at that place. Loose hay may be given her at some other corner; but do not place the hay in a high rack like those in an old-fashioned stable, as a cow would only drag it down and waste it on the ground.

THE CALF.

Before calving a cow will not be expected to give any milk for about six weeks or more; and if she should be disposed to continue in milk, let her be gradually dried of, by only half milking her once or twice, and afterwards missing one milking time entirely; and at the time she is expected to calve let her be watched. And as it would not be proper to bring up a calf where the milk is of so much more value, it is better to remove it at once from the cow, and feed it by hand with the milk from her for about a week or so, and then sell it to those who buy such calves to bring up. In some parts of England all calves are brought up this way—no suckling at all, and they do just as well; and after they are no longer thought worthy of new milk they have it skimmed. And as the keeper of only one or two cows often wants the whole of the milk they give, it would be better to disregard the calf entirely than bring it up for three months or more and then sell it for veal. This, however, is the keeper's affair; only it is better, when it is determined not to bring up the calf with the cow, not to let it suck at all. At the time of calving the cow must not be treated with much green food in summer, as that is liable to bring on milk fever; and if she be rather inclined to get fat, keep her sparingly for some time prior to calving. In winter this disease is not so common, but it does occur then. The most likely victims are those inclined to fatten, and its prevention and cure are alike difficult: the latter might be said to be almost impossible. Calves are sometimes afflicted with gripe; but usually they thrive pretty well. When they are given skimmed milk, it is much improved by a large piece of hot iron being put into it to warm it; the chemical property imparted by the iron being beneficial in spite of the jeers of those who scoff at the hot-poker-heating-contrivance—no other mode seeming to answer so well. J. Robson.

(*To be continued.*)

New Potatoes.—At the last meeting of the Enniscorthy Guardians, Mr. Lett laid before the Board a sample of new Potatoes grown in the open air; they presented a most healthful

appearance, and all the Guardians present were delighted at the sight. Mr. Lett stated he had tried the field in several places and found them all equally good, and free from all appearance of blight.—(*Dublin Agricultural Review*, March 23.)

THE PEACH TREE.

The surface of garden-walls devoted to the production of the Peach in the various gardens of this kingdom, is one of prodigious area, and the results obtained from its appropriation to this purpose, are, unhappily, "but few" good ones, and these "far between." In many cases the trees are planted in deep and undrained borders, instead of well-drained and shallow ones resting upon impervious bottoms; and in others the borders are made too deep, twenty inches being, in my opinion, a full depth for the roots of this tree. At this depth the roots are within the influence of the sun's power, and are prevented from sinking down deeper, and becoming overgorged with crude food.

But, supposing the skill of the gardener to have been most fully developed in providing unexceptionable borders, and trees worked upon good and proper stocks, we have yet a formidable evil to contend with, and that is—climate. However well our wood may be ripened, however prominent and plump the buds may appear, and even when all has gone well to the blossoming season, one night of severe frost may blast all our hopes, annihilate our fair prospects. Such fatalities are of yearly occurrence, and there are few of our readers who have not in reality winced under such visitations. But we have our antidote. We have now at our disposal cheap glass, and of all things in the way of protection this seems to me to be the best, fully realising our anticipations as to fruit. Indeed, I cannot help thinking that when one takes into account the labour and skill required to prune and train trees, and that the result of all this is *nil*, in fifteen cases out of twenty small, a portion of wall enclosed with a glass-case yields a more sure and satisfactory return than four times the extent of open wall. But to make the arrangement complete, a hot-water pipe should be added; for Lord Eversley erected a glass-case and lost all his Peaches from severe frost by this omission. I have given up Peach culture on the open walls, and have about 160 feet of these glass-cases, which yield me a certain and ample annual supply of fine fruit always of first-rate quality and flavour. Out-of-door Peaches are excellent in a fine sunny season, but they are poor mawkish things in a dull and wet one.

There is, I think, a great advantage to be gained as to the quality of the fruit from using glass, which is almost an absolute requisite in this country. In its native country of Persia, its flavour is fully developed; while in Louisiana, in North America, upon the same parallel of latitude, it is only deemed fit for feeding swine, and Phillips says it is not uncommon to see orchards there consisting of upwards of one thousand trees.

I cannot help thinking that great importance attaches to the proper formation of the border for Peach trees, and upon this subject I would most fully endorse all that my worthy friend, Mr. Errington, has written upon the subject of platforms and shallow planting. The Dutch gardeners are very good managers of these trees, and never fail in obtaining a crop of fine fruit. Much is to be done with the Peach in this way, and in root pruning; and to know exactly what to do, and when, is only to be learned by close attention and experience.

But we have seen that the greatest stumbling-block in the way of the cultivator, is our ungenial and precarious climate. The vexed question of protection was so fully discussed in a contemporary some years ago, and such a mass of conflicting opinions elicited, that it was enough to stagger the most impartial and experienced judges. After attentively reading all those papers, my own opinion remains unchanged, and it is—that protection and *retardation* are *essential*. In the modes of appliance there are great differences. All permanently fixed appliances are bad, and every inch of protecting material should be so disposed as to move in any way at the discretion of the director. I have seen much harm done by close protections weakening the blossoms and making them drop; and if I were to choose between having such, and none at all, would prefer the latter.

It has been alleged by some persons, that by having the wood and fruit-buds well ripened in the previous summer, they will be enabled to bear the trying influences of our wintry winds and frosts with more impunity; but although I hold their thorough maturation to be a first principle, I do not think it capable of imparting to the delicate tissues of the flowers a greater resistance to cold, and I think that those who entertain such opinions rather overshoot their mark.

I have coupled the principle of retardation with that of protection, and as a precaution would advise those who may contemplate placing glass against their walls, to make ample provision for ventilation. This is very important, both for keeping back the trees from flowering, and for the setting of the blossoms. Peach trees enclosed in a glass-case without air, would flower too early, and do little good in setting.

It has never fallen to my lot to have seen many Apricot trees under glass in this country. But in Holland they are much in the fashion of thus forcing Apricots. At Haarlem I saw many houses of them, and they derived their heat from beds of leaves, or dung, along the front, upon which were invariably planted alpine Strawberries. I think that the Apricot acquires on our walls a better flavour, comparatively, than the Peach, but glass seems very essential for bringing out the piquant aroma of the Peach. To glass, therefore, I would consign it, nor leave it again, with all its tender attributes, to brave the frosts and inclemencies of our English spring.

Henry Bailey, *Nuneham.*

COMPARING NOTES.

HOTBEDS.

My friend Mr. Beaton, in alluding recently to a plan of hotbed-making, expressed his opinion, that the *three-feet* spaces wider than the bed spoken of, would be the very places to sow many tender seeds, giving them some simple protection from above, such as hand-lights, mats, &c. In this I heartily agree, provided the spaces are there, and if the glass of the frames is not removed, means are taken to prevent the water in rains from the sashes running on the ground thus occupied by seeds. I find I must have expressed myself rather loosely, however, in the article on making hotbeds, as when I spoke of making the bed three feet wider than the intended frame, what I meant was, that the bed should extend eighteen inches beyond the frame in front and at back, which, together, would make the three feet. The objects of this were chiefly twofold. To dispense with the necessity of linings to such a bed intended for such temporary purposes as seed sowing, chiefly because material for lining is often difficult to obtain, and when applied in a crude state, carelessly, is apt, by the noxious steam passing from it, to neutralise all previously well-directed efforts; and secondly, this eighteen-inch space furnishes a platform on which, as soon as it may be required, more sweet-fermenting material may be packed round the frame to secure the requisite atmospheric temperature. In a bed so formed, and the bottom heat renewed as directed in that article, there would seldom be any complaint of a deficiency of bottom heat; but the top or atmospheric heat would often vary as much according to the changes of the weather, as our correspondent "L. E. C." stated to be the case with her. This packing round the frame, pretty well to the top of the box, gives the means of keeping up a genial atmospheric temperature, high enough in dull, cold weather, and permitting a more free circulation of air when the weather is more mild and sunny. My own firm conviction is, that even in the case of hotbeds for such things as Cucumbers and Melons, that are commenced with tolerably early —say, in February and March, the forming the bed at once thus extra wide, will be attended alike with economy in labour, economy in material, and greater success. By the general mode of making the sides of the bed only a few inches wider than the frame, linings must, ere long, be applied; and these acting chiefly on the dung in the bed, the heat that warms the atmosphere must first pass through that dung and its covering of earth, and often by the extreme heat does much injury to the roots, and renders the plants unhealthy or covered with insects. By employing the extra heat to the sides of the frame, instead of to the sides of the bed, no such dangers are encountered. Frequently such beds made in March never have, what is technically called, "a lining" until the cold nights of autumn, and even then much of the sides of the old bed is not removed. It is necessary, however, under such a mode of treatment, that the sides of the bed, especially early in the season, should be protected with wattled or thatched hurdles, or, at least, a little long litter. Having adopted this plan for many years, chiefly on the plea of economy, I was much pleased to find, that when I visited Bicton, Mr. Barnes managed the whole of his framing on a similar system.

It seemed hardly possible that ever he could have too much bottom heat, while the means were effectual for maintaining a genial top temperature. A burning bottom heat is one of the rocks on which many of our enthusiasts wreck their otherwise-carefully-conducted experiments.

SOWING FLOWER-SEEDS IN HOTBEDS.

For hotbeds requiring a medium temperature of from 60° to 70°, and managed on the above plan, there would be little opportunity of raising seeds outside, except in pots and covered. In the case of half-hardy annuals, and the hardiest of the tender annuals, and the seeds of other things requiring similar treatment, nothing could answer better than such wide beds, fully as wide as those alluded to by Mr. Beaton. In their case, beds of from twelve to fifteen inches in depth would be quite sufficient. Supposing the space was covered with nice light soil, the seeds, owing to the genial warmth, would come up much more quickly than if sown under glass in the ground, without any extra heat; and if not coddled and plenty of air given to the plants, they would soon be equally hardy and robust. On such a bed I have frequently placed a two-light box, or some spare handlights in the centre. There I have sown the tenderer seeds, with two slips of wood nailed together at the angles to form the spout in front of the glass to take off the water; and outside I have sown the hardier kinds, covered with a mat, a piece of calico, &c. At other times I have sown only in the bed in the centre, when the plants were well up gave plenty of air, then, ere long, removed the glass, and used a little protection at night, whilst the rest of the bed was used as a pricking-out ground, the plants at first receiving a little protection. This mode is very applicable to Stocks and China Asters. Whilst on this subject I may mention that something of a similar plan is the best I have ever tried for securing fine, uniform beds and borders of annuals, even of the hardier kinds. At one time I did a good deal with them, though comparatively little of late years. The soil here being heavy they seldom stood the winter well when sown in autumn; and when sown in spring some parts would miss, and, until the plants became large, the beds would look a little patchy. The best plan I ever tried with them when sowing them out of doors, was to sow in little patches and cover each with a four or five-inch flower pot, and placing a crock over the hole at the top, from the pot being reversed, to keep the space within darker and warmer. As soon as the seedlings could be seen, the crock over the hole was removed; then in a few days the pots were tilted up on the sun side, and let down again in cold nights. By this mode seeds even rather tender can be well managed, if not sown until the middle of April or so. Hardier ones may be sown from the beginning to the middle of March. But like every other good thing, the plan is apt to be abused, and a neglect of tilting the pots, and removing them altogether in time, will make the plants tender and more easily injured than if the seeds had been sown exposed in the usual way. When there is much of this pot-covering, the labour in properly attending to them becomes a serious matter, more especially if much ground is to be gone over. This latter consideration determined me on raising the seedlings under protection, and then transplanting them in tufts. If I could spare glass, I did not care much about a hotbed. If I had to content myself with mats, hurdles, &c., I liked to have a slight hotbed, about a foot in depth. In either case, the additional moist heat made the plants come more regularly, and to make them stubby, nothing was wanted but plenty of air. With or without a hotbed, the preparations were the same; only if the latter were the case and a border of soil was to be used, two or three inches of the best aired soil on the surface were removed. On that border so prepared, or on the top of the slight hotbed respectively, two or three inches of half-rotten leaves were placed. Then there were added two or three inches of rotten leaf mould, not over fine, and the riddlings from the soil intended for the surface, mixed together and beat level, and then an inch or two of fine, light, sifted soil for the surface; on that surface the seeds were sown rather thickly in rows, or rather shallow drills, about two inches and a half apart. A row six feet in length would be sufficient for a moderate-sized bed. As soon as the plants appeared, plenty of air was given; and by the time the plants were between two or three inches high, they were in prime order for planting out. Before that time the beds were forked over several times, so as to be thoroughly aired and pulverised. Having in winter or early spring been previously stirred deeply, the plants afterwards inserted were sure to flourish in the best order, because in wet seasons the moisture freely descended, and in dry seasons the roots went freely down, and the moisture rose from below in obedience to the pumping power of the sunbeam. With all the smaller things, as Goodetias, Clarkias, Sphenogynes, Saponarias, Nemophilas, &c., the planting out separately is out of the question. The great thing is, to place the plants out without scarcely feeling their moving; and, therefore, we will describe the minutiæ.

In a fine day in April or so, a sieve is taken to the seed-bed, the bottom previously covered with Broccoli leaves, moss, &c. The trowel is inserted at the end of the seed-row, and from the previous preparations the seedlings are easily raised in lumps without losing a root. These lumps are carried on the sieve to the well-prepared bed. Small holes at regular distances are made over the bed, close or farther apart according to the nature of the plants, and a little bit containing three, four, or more plants is broken off from these lumps, with scarcely a chance of losing a fibre, the roots hang so close and firm among the rather coarse leaf mould and soil. Some of the fine surface soil of the bed is pressed round each separate little bit or rather tuft, and enough taken to fill the hole within an inch or two of the level. When the bed is planted, these are all watered from the spout of a pot, and so as not to spill any on the surface of the bed in the intervening spaces. When that is settled, in the course of an hour or so, then the holes are filled to the level with the dry surface soil, the surface is made smooth and neat with the fingers or a small rake (I greatly prefer the former for small things), and, in the general run of seasons, such beds require no more attention, except, perhaps, according to the kinds, a little pegging or keeping up with twigs. For each of these minutiæ I believe there is a satisfactory reason, but I cannot reiterate those reasons at present. There is little trouble in the plan, though my description may seem tedious. When a fine display from annuals is wanted, there is no plan I have tried better for securing symmetrical beds, with abundance of early and of long-continued bloom. The extra preparation that can be given to the beds is one reason, the regular and yet thin planting in tufts is another. The roots being uninjured, strike at once into the finely aired soil. I have no faith in dibble-planting for such beds. As a sort of rule I may mention, that for fine beds of *Saponaria Calabrica*, the little tufts were placed about seven inches apart. I have had good beds from sowing seeds of that pretty thing where the plants are to remain, but hardly ever had them so symmetrical, blooming so early and continuing so late, as when raised and planted out as above described. A blank or two, or one part of a bed lower or higher than it ought to be, mars the effect, and this is most likely to happen when the seeds are sown in the bed.

Will our lady friends, such as "L. E. C.," and "Rose," and others, give the plan but a limited trial this season, and give us a faithful report of their success or failure?

TOO MUCH HEAT FOR SEEDS AND SEEDLINGS.

Once more at present as to giving too much heat to seeds. I am sure my friend Mr. Beaton will forgive me for even a seeming intrusion into his grounds, as none are better aware than he, that simple truths want frequent hammering to drive them home. So far as the *Perilla Nankinensis* is concerned, it has always come up with me when I gave it a heat of 70°, and so it does at a temperature of 50°. I believe that failures in seed-raising among amateurs are chiefly referable to two causes—giving them a strong bottom heat of 85° to 100°, and covering them too deep, and if the seed is at all old, watering too soon. Even in the case of Cucumbers and Melons, I have plunged pots in a warm hotbed, not one of which grew; seeds from the same packet, but the pot standing on the surface, produced healthy plants. Some seeds that will stand a great amount of heat will come up quicker when it is given; but they would come up safely, though later, in a lower temperature. If attention is paid to Mr. Beaton's remarks on this subject, there would be fewer failures. Vegetating seeds and seedlings do not require the same high temperature as the plant needs to bring its product to perfection. From 50° to 60° would be a safe medium for a great proportion of seeds to which I frequently give extra heat. For instance: To grow a fine specimen of some of these long Cucumbers, will require an atmospheric temperature of from 65° to 70°, with a good rise from sunshine, and a bottom temperature, if procurable, from 75° to 80°. But young seedlings would be far more robust and less likely to be affected with insects if the heat were seldom above 60°, except in sunshine. In March and April I have often seen Cucumbers and Melon plants growing among Potatoes, under frames, more healthy and robust than those in

the regular hotbeds, though there was an average difference of 20° between them, the seeds having got mixed with the soil used for the Potatoes. Long ago, I took occasion to refer to the hardiness of many seeds, though the full-grown plant was tender, such as Portulaccas, coming up as thick as they could stand together, where they had grown out of doors the previous season.

Here there would, no doubt, be such "a struggle for life," that the stronger would cover over and destroy the weaker; but apart from the fact that many annual, tender exotics may thus be naturalised, we are furnished with a proof, that extra coddling by heat to seeds is frequently worse than labour misapplied.

DWARF YELLOW MARIGOLD.

Just a word on this subject. Sometimes this orange variety is very pretty; but not, in my opinion, a substitute for the yellow Calceolaria. The variety I grew had close, upright, rather than flat, expanded blooms, very double, and a rich orange in colour, and reached from six to twelve inches in height according to soil. I obtained it several years ago from Mr. Veitch, of Chelsea. The year before last I saved more of it than usual, as several friends wished to have some seeds. I am sorry to say, that in their case, and also in my own, the plants did not all come true, either in height or the colour of the flower, last season. I attribute the defect to the flowers getting crossed with other French Marigolds. For some years it came perfectly true, even though other Marigolds were at no great distance. I believe that Mr. Veitch has still the same sort; at least in his catalogue there is a dwarf new yellow, which is much the same description I had with it. Two years ago, I had an edging round two large clumps, altogether not much less than a hundred yards, and there was not a hair's breadth of difference in the plants, either as to height or colour. From the circumstance mentioned, however, I should not like to trust to my own seeds for a specific effect. The seeds were sown just as I have spoken above, for a bed of annuals, and about the 20th of May the plants were turned out about six inches apart in the row. Soil rather stiff and rich. Though making a nice edging for other things of a kindred character, I do not consider it by any means equal to an edging of *Aurea floribunda* Calceolaria. The plants bloomed freely from about the middle of June until cut down by frost. I shall try to obtain it true again, by keeping it away from all its kindred. R. Fish.

FLOWERING OF COCOS CORONATA.

The flowering for the first time in Europe of a member of the Cocoa-nut family, is too great a horticultural triumph to be allowed to pass unnoticed in the pages of The Cottage Gardener. *Cocos coronata* has within the last few months produced three large masses of its interesting inflorescence, in the noble Palm-house of the Royal Botanic Gardens at Kew. This tree is a native of Brazil, and the Indians, who call it "Urucuri-iba," make the pith of it into a kind of bread, as is done with that of many other species of Palm; and they also obtain oil from the seeds.

This *Cocos* is planted at Kew in what is a perfect grove of Palms, many of them large enough to give one a good idea of their appearance in the tropics. Here we find the male Date Palms flowering freely; *Seaforthia elegans* with its gracefully drooping pale rose-coloured inflorescence; the Great Fan Palm (*Sabal umbraculifera*), with immense clusters of ripening fruit; the rigid-looking Norfolk Island Pine (*Areca Bauerii*), also ripening its seeds, and many others. But the most interesting among all these is the Cocos, because no untravelled European ever saw it in flower before. Its stem is as straight as an arrow, bare and smooth, but just showing the places where the leaves have been attached. The stem is about fourteen inches in diameter near the base, and at a height of about thirty feet it bears a crown of gigantic leaves. There are a dozen of these leaves, each of which is about twenty-five feet long. They all bend away from the centre in the most graceful curves. The leaflets about eighteen inches long, are lanceolate and acuminate in form, and scattered in two irregular lines along the greater part of their length, while the lower part clasps the stem. In the autumn of last year a swelling was observed in the axil of one of the leaves, this gradually developed itself into a club-shaped appearance, and attained a length of between four and five feet. This was the spathe, enclosing the inflorescence, as is the case in all the family of Palms. In due time it burst and disclosed a host of the most delicate pale primrose-coloured spikes of flowers. These were each about two feet in length, and formed an elegantly drooping mass, not unlike a gigantic trophy of feathers. The individual flowers, closely seated on these spikes, were small and inconspicuous, they were principally males and produced a large quantity of pollen; but on the lower part of the spike a few female flowers were observed, and to all appearance many of them were set and will ripen their seeds during the summer. Since the appearance of the first flowers, two other spathes have been formed, and the flowers are now expanded. The seeds when ripe are about the size of Walnuts, but rather longer. It is, therefore, in this particular, far inferior to the true Cocoa-nut (*Cocos nucifera*).—Karl.

SEEDS OF RARE CONIFERS.

Having a few seeds of the following kinds:—*Wellingtonia gigantea*, *Pinus Gordoniana*, and *Pinus Don Pedri*, I should feel obliged if you would inform me how to treat them.—W. L. H.

[The seeds of these, and of all rare foreign Conifers, do best in pure yellow or brown loam, in a cold close frame, and receiving little or no water till the seedlings are well up. The Araucarias and Deodar Cedar are exceptions: their seeds do best half buried in the soil, by sticking in the seeds on end; but a cold, close frame is far more safe than any heated place. When the seedlings begin to break ground a little air should be given all day. When Conifer seeds are in good condition they are more easy of management than Mignonette seed; but when they are in bad, or but moderate health or condition, there is a peculiar risk with them from damp, during the period between the coming of the seed-leaves and the rough leaf, as we say in other seedlings. Affected seeds throw up seedlings on weak, bandy legs, which require good nursing. No artificial heat, no damp, no want of air, and not much air or too much strong sun, till the legs are hardened a little.]

FLOWER GARDEN PLAN.

This plan has been in my possession a long time, and I believe it is an old plan by some architect, but that I did not inquire about. On the face of it is stamped the work of an artist, and that artist was not a flower-gardener. The plan, however, is capital for learning the art of planting in composition. It is one of the most difficult plans to plant properly I have seen for a long time. A second thought of a designer, or a second addition by some one, is plainly enough to be seen in the row of uniform beds from 36 to 42, running the whole length of the original design, and certainly was intended to amalgamate with it.

In these days of fast gardening it is very common to see, in country places, the rules of simple addition, multiplication, or subtraction, applied, through necessity, to former plans and designs in the grounds of flower gardens, when a place is renovated or improved, or altered from one style to another, or merely for bringing up the taste of the day to the level of the lawn, so to speak.

Indeed, the greatest part of the landscape gardening of the present time consists of applying the said rules to existing things, and the rule of simple addition has been added to the original of this design before us by some one. The additional ground occupied by the beds, from 36 to 42, could have been as easily as not appropriated in the beds composing the original idea, if that extent were then thought necessary.

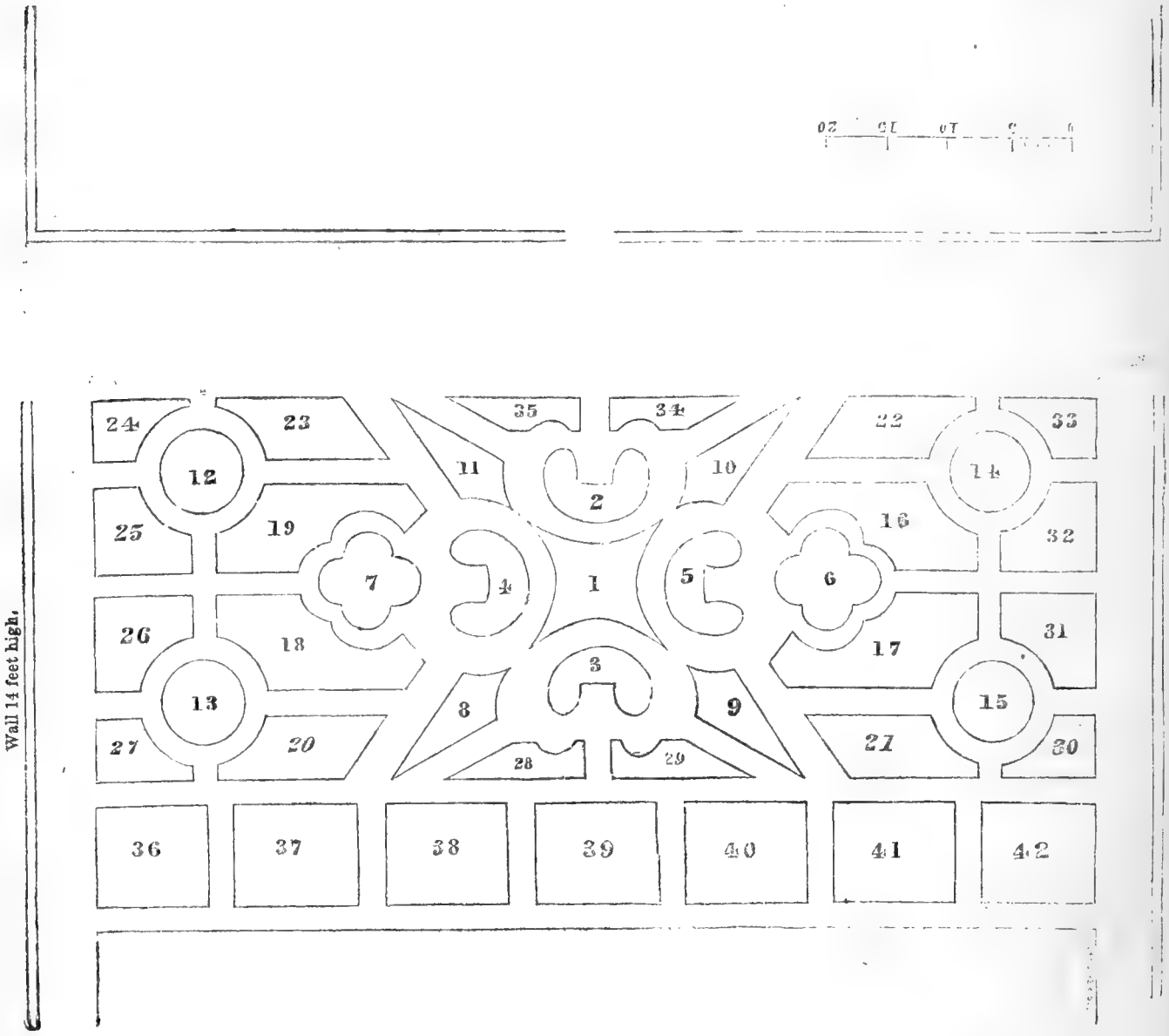
The most difficult part which a planter of plans of this nature has to overcome is, to get the plants and colours in the additional parts to harmonise with those in the original design, and to make them appear to have been part of that plan from the first. When I saw the way clear to that point, I offered to show how the planting might be done, upon condition that I should be allowed to insert the plan and planting in The Cottage Gardener. All the parties were strangers to me, but my offer was accepted; and three more plans of three other flower gardens and several ribbon-borders, forming the whole flower gardens of a ducal establishment, were sent to me, I suppose with a view that this, the fourth flower garden, should be so planted as to suit the style of the whole place. The place is Raby Castle, near Darlington, the owner is the Duke of Cleveland, and the gardener is Mr. Shortt. I never saw that castle or any of the parties; but from the plans sent, I had no difficulty in seeing the nature of the plan, and how the whole stood.

The flower gardens of one of our ancient and most celebrated

castles are to be converted to the fashion of the day without any alteration in the old plans—the very thing I should do if I were first born to a dukedom. I would endeavour to stamp the character of the age in which I lived on everything, inside and out, to which my birthright had entitled me; but the things themselves I would scrupulously retain to the last form of bed in the flower garden, if it were of ancient standing; and I would even obliterate anything of recent invention if it did not associate with the character of the place.

Well, I made several plans of planting before I satisfied myself, and being rather jealous of the character of The Cottage Gardener, I showed the way to two or three critics whose judgment is better than my own. They differed slightly from each other and from me, and, to tell the truth, I did not put so much faith in them this time as I often do; but having an interest in their opinions, I suggested to submit the whole to a third party, a practical flower-gardener, whose beds are constantly before the public. Well, last January the plan was sent to Mr. Craig, the flower-gardener at Kew, with a request to plant it in first-rate style in any way he thought best. He was not told to whom the plan belonged, or that it was determined to have it published, only that he would oblige me by doing it. He soon returned two very good plans, and this is the best of them. Then, they said, he "took the feather out of my cap," and I rather think he did; but as he did not take the cap itself, I wrote to him to say, that was a feather for his bonnet; and for allowing him to wear it without a tilt, I told him, plainly, he must allow me to tell how he got that feather, and rather than enter the lists he did allow it, but said I must stand the consequences, and I suppose I must.

Conservatory 90 feet long.



Well, with only one feather lost, I do say that this is a very instructive plan for young people to learn by. The key bed, No. 1, is not so large as we often see them in that centre part, which is an improvement, since all such beds are now planted in weak colours, or in neutrals. The *Golden Chain* is the richest of all our neutrals, and the edging to it, *Lobelia ramosa*, is the best and most appropriate for the harmony of contrast.

The beds 2, 3, 4, and 5, next to the centre are small also, with a white edging of *Cerastium tomentosum*, and gay centres, but not dazzling colour; *Cuphea ignea* being what was known first as *strigilosa*. 8, 9, 10, and 11, are badly-shaped beds, and are so placed in relation to the beds nearest them as to make them very difficult to plant, each of them having part of its side opposite four other beds planted in four different colours. 6 and 7 are exceedingly well placed, and planted for effect—I am reading it from a coloured drawing; and the way 17 and 18 embrace them with *Flower of the Day*, deeply edged with *Purple King*, is as rich as one can conceive. Then the light blue, 20, 21, 22, and 23, on each side of them, and the same colours as 6 and 7 repeated farther to the right and left, and wider from the centre line, or axis, is one of the very best dispositions of the master colours that I have yet seen in this style of planting. All the rest show the colours well balanced. There is a secret in planting the seven beds from 36 to 42, to cause an apparent agreement between their own plain outsides or figures, and the intricacy of the beds in the original design. Happily these beds are seven in number, which allows of the centre one being made a key bed different from the rest, and from which the rest can be read in match pairs right and left of it. 39 is the key bed for that part, and it is planted in three stripes parallel to the axis of

the plan; 38 and 40, the first match pair, are also in three stripes; but the ends of their stripes and not their sides, are parallel to the axis 37 and 41, three equal stripes with their sides parallel-like, as in 39; and 36 and 42 the last match pair in three stripes, as in 38 and 40—that is, with their ends standing parallel to a line drawn through the length, 26 to 30, or the axis of the plan. The colours in all the seven have reference to the position of the colours in the original plan, and the secret of agreement is, that these colours come first with their ends, and next with their sides, and so turn about.

REFERENCE FOR PLANTING.

1. Geranium *Golden Chain* edged with *Lobelia ramosa.*

2, 3, 4, 5. *Cuphea ignea* edged with *Cerastium tomentosum.*

6, 7, 12, 13, 14, 15. Calceolaria *Trentham Yellow* edged with *Tom Thumb* Geranium.

8, 9, 10, 11. *Perilla Nankinensis* trained and edged with Calceolaria *Aurea floribunda*, the best to fill up such sharp points.

16, 17, 18, 19. *Flower of the Day* Geranium edged with *Purple King* Verbena.

20, 21, 22, 23. *Ageratum Mexicanum* edged with *Cineraria maritima*, both trained down.

28, 29, 34, 35. Geranium *Brilliant* edged with Geranium *Baron Hugel.*

25, 26, 31, 32. Verbena *Géant des Batailles* edged with *Alyssum variegatum.*

24, 27, 30, 33. Verbena *Purple King.*

36, 42. Verbena *Lord Raglan*, one third of each bed on the outside; *Delphinium formosum* or *sinensis*, one-third ditto in centre; Calceolaria *Prince of Orange*, one-third inside of each bed with the ends of these colours to 27 and 30.

37, 41. Verbena *Brilliant de Vaise*, one-third inside and outside, and *Mont Blanc* Verbena, one-third in the centre, the lines of colour being parallel with the axis of the pattern.

38, 40. Verbena *Hamlet*, one-third in the centre, and *Mrs. Holford*, one-third on each side, the ends standing to the axis.

39. Calceolaria *Aurea floribunda*, one-third; *Purple King* Verbena, one-third on each side, the lines parallel to the axis.—D. Beaton.

VILLA AND MINIATURE FARM.

There are many of the readers of The Cottage Gardener *and Country Gentleman's Companion* who, like myself, possess a small *laçon*, or grass-plat, in or adjoining their garden. Probably, like myself, some of this number have oft-times within themselves said, if not by words expressed as much, how much prettier and more rural would their little parterre look were there some correspondingly small and pretty object of animal life to graze upon it.

The *laçon* has always to my mind, as a lover of animal nature as well as of floriculture, appeared defective in this one point, and more especially when there is a small—ever so small—piece of a field attached. Possessed with this idea, I sometime back filled up the vacancy by a small goat; but as I took to keeping poultry about the same time, I felt that this was not quite what I wanted. I have, however, recently become possessed of the very thing I wanted in the shape of an extremely pretty, gentle, and remarkably tame and docile Bretagne sheep, imported by the Messrs. Bakers, of Leadenhall Market. This tiny but full-grown creature weighs about 17 lbs. only, and gratifies my wish in every way. It is of no trouble whatever, very hardy, and the expense of its keep so trifling as not to be worth consideration; it will follow me about wherever I go, is playful, and delights in being noticed, more especially if fed from the hand.

To ladies more especially these miniature sheep recommend themselves. For the comfort of this little animal, instead of tethering it on the grass, Mr. J. B. Brown, of 18, Cannon Street, expressly made me some light and neat little iron hurdles—the very thing, wherewith I enclose the sheep with full liberty inside.

I find that I have no longer the expense every fortnight of having the grass cut; while the manuring from the sheep improves the quality of the grass.

Messrs. Bakers have since lately imported some miniature cows from Bretagne—so small, and pretty, and gentle, and elegant in shape, as makes me long to extend my little "agricultural" pleasures to the formation of a miniature "farmyard." These cows are even prettier than the sheep, and have much to recommend them to small families who desire pure milk, and who seek the pleasure of attending to the wants of a pet so useful and graceful as these little things are. They stand only three feet high, give rich milk equal to the Alderney, cost very little indeed to keep, are very hardy. They give from four to eight quarts of milk a-day, according to circumstances, and add much to the pleasure of the "homestead;" while they add a charm to a little paddock or field of ever so small an extent, and can be kept in a shed. Their calves, wee things, are remarkably pretty. For villa residences they are just what is wanted. The attention they require and trouble they give are more than compensated by the pleasure they afford. I think there are many, both ladies and gentlemen, amongst your readers, who will thank me for bringing these pretty toys before their notice.—A Lover of Flowers and of Animated Nature.

PLANT FOR A DOORWAY SCREEN.

On either side of the house-door, having a north aspect, there is a window half sunk, which lights the scullery and staircase, having for a screen a trellis about 3 feet 6 inches high and 10 feet long, of an elliptic form. They are covered now by old, wild-growing high-climbing, Roses of I know not what name, which are nearly dead through unmerciful pruning to keep them tidy. I do not remember that they have bloomed these fifteen years; and my wish is to plant something that would thrive and have a more pleasing effect. I have lately purchased at the recommendation of a friend a *Clianthus puniceus*, which I now am convinced would not answer there; also a *Bignonia grandiflora*, which some gardeners tell me will require more height. The same difficulty applies to a Virginian Creeper and some others.—An Old Subscriber, *Jersey.*

[Your case is one of very general occurrence in villa or suburban houses. The door is either in the centre or next the end where high life below stairs luxuriates; and every rap at the door, or every "good morning" in handing or landing your company to carriage, puts high life on its heels below to know the state of affairs in the upper regions, and that is indeed very disagreeable. Old Roses will not keep the proceedings out of sight; neither will Chimonanthus, nor *Bignonia grandiflora*, nor a Virginian Creeper as you have been told. There is only one proper plant to hide the higher from the nether world. That plant, by good management in the pruning, and by good gardening in the soil, might be in bloom from May to October, be green nine months out of the twelve, and be as sweet as a double Violet; and everybody should have it for such screens. It will last forty or fifty years as good and fresh as at the beginning, it is never troubled with insects, and it will come from cuttings nearly as freely as *Tom Thumb.* The English name is Japan Honeysuckle, and the botanical name *Caprifolium Japonicum.*]

AUTUMN *versus* SPRING PROPAGATION.

Much has been said, and many articles written, upon the vast superiority of spring over autumn propagation of bedding plants; and although there has, no doubt, been much of truth in those remarks, yet I think the subject is worth further consideration. One great cause of failure in autumn propagation, is in not beginning soon enough; it is put off from week to week upon the plea that it is plenty soon enough, until the latter end of September often comes before a beginning is made. The cuttings then obtainable are beginning to lose their vigour; the vital principle is not so active in them then as it was a month previously; the weather is getting colder, darker, damper, and the chances are ten to one against their striking. Nor is it to be wondered at that we see so many cutting-pots partly filled with miserable-looking, mildewed plants, when such a system is practised. Delays are dangerous, therefore do not be a day later than the 1st of August in commencing propagating.

I generally begin with the Geraniums, which are put in on a south border in the open ground (no matter of what kind, or however rare they may be), where they remain until the end of September, by which time they are strong, bushy plants. Next come the Verbenas, which are put in pots, and placed in a cold pit, where they are kept close all day, and have the lights tilted by a brick at night. After they are well rooted they may be placed anywhere so that they are kept from the frost until the beginning of February, when they should be potted off, and if possible put in a little heat to set them growing. They must not, however, be kept long in heat—a month should be the out-

side, or they will soon outgrow their allotted space and become weak and spindling, and if they are looked over occasionally, and the tops of the shoots pinched off, they will be fine sturdy plants by bedding time.

I have at the present time seven or eight hundred plants which have been treated as here described, and they are stronger and bushier, and, I think, hardier, than any that I have struck this spring. Calceolarias, Cuphæas, Heliotropes, Salvias, Lantanas, Ageratums, &c., get the same treatment as the Verbenas, and I find do quite as well.

The great point to be observed in wintering bedding plants (especially if kept in cold pits) is to water sparingly. The water-pot kills more plants in winter than the frost. I have kept Geraniums three months in a cold pit without giving them a drop of water, always giving air when the weather would permit, and during severe frost have had them covered up a fortnight at a stretch without doing them any injury. Geraniums will, I believe, stand more ill-usage than any other bedding plant; for after the severe frost we had in October, I dug up several plants from the beds, potted them (without cutting them down) in very dry soil, and put them on a back shelf in a greenhouse, where they remained unnoticed, and almost forgotten, until the latter end of December, when I cut them down, watered them, and put them in the early vinery, where they soon broke and made good plants, and I did not lose more than ten per cent. of them.

But to return to the propagating. Let it not be supposed that I condemn spring propagating as unnecessary, or unprofitable, for I know full well that where plants are bedded by thousands, and space for wintering is limited, a great deal necessarily depends upon spring-struck plants; besides which, some plants—such, for instance, as the Lobelia, are very difficult to strike in autumn, and not worth much when they are struck at that time of year. Then, again, fast-growing trailing plants, such as Anagallis, Petunias, &c., should be deferred till spring, on account of the room they would occupy if struck in autumn. But we often hear amateurs and gardeners in small places complaining that they cannot get heat enough in spring to strike as many plants as their flower-beds require, and to such I would say, Propagate in autumn as many plants as you can, and do not be late in beginning.—Veritas.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page* 402, *Vol. XXIII.*)

PLUMS.

Précoce de Bergthold.—This is a small, roundish-oval plum of a yellow colour, similar in appearance to, but of better flavour than, White Primordian. The flesh is juicy and sweet, separating from the stone. Shoots downy. It is very early, ripening before the White Primordian in the latter end of July.

Précoce de Tours (*Damas de Tours; Noire Hâtive; Prune de Gaillon; Violette de Tours*).—Fruit below medium size, oval, sometimes inclining to obovate, and marked with a shallow indistinct suture. Skin deep purple, almost black, thickly covered with blue bloom. Stalk half an inch long, slender, inserted in a very slight depression. Flesh dull yellow, rather juicy and sweet, with a pleasant flavour, and adhering closely to the stone. Shoots downy.

A second-rate dessert plum, but well adapted for culinary use. Ripe in the beginning of August.

Prince Englebert.—Fruit very large, oval, and marked with a shallow suture. Skin of a uniform deep purple, covered with minute russety dots, the whole thickly covered with pale grey bloom. Stalk half an inch long, inserted in a rather deep cavity. Flesh yellow, rather firm, sweet, juicy, with a brisk and rich flavour, and adhering to the stone. Shoots smooth.

An excellent plum either for the dessert or for culinary purpose, and "delicious when preserved." Ripe in September. The tree is a great bearer.

Prince of Wales (*Chapman's Prince of Wales*).—Fruit above medium size, roundish, inclining to oval, marked with a distinct suture. Skin bright purple, covered with thick azure bloom, and dotted with yellow dots. Stalk short and stout, inserted in a slight cavity. Flesh coarse-grained, yellowish, juicy, and sweet, with a brisk flavour, and separating from the stone. Shoots smooth.

A dessert plum of second-rate quality, but suitable for all culinary purposes. Ripe in the beginning of September. The tree is a very abundant bearer.

Prince's Imperial Gage. See *Imperial Gage.*
Prune d'Allemagne. See *Quetsche.*
Prune d'Ast. See *d'Agen.*

Prune Damson (*Damascene; Long Damson; Shropshire Damson*).—The fruit of this variety is much larger than that of the common Black Damson, and more fleshy. It is generally preferred for preserving, and of all the other Damsons makes the best jam. The flesh adheres to the stone. Shoots downy.

The tree is not such a good bearer as the common Damson. Ripe in the middle of September.

Prune de Gaillon. See *Précoce de Tours.*
Prune d'Italie. See *Italian Quetsche.*
Prune de Milan. See *Impériale de Milan.*
Prune d'Orleans. See *Orleans.*
Prune Pêche. See *Nectarine.*
Prune Pêche. See *Peach.*
Prune du Roi. See *d'Agen.*
Purple Egg. See *Red Magnum Bonum.*

Purple Gage (*Reine Claude Violette; Violet Gage*).—Fruit medium sized, round, slightly flattened at the ends, and marked with a shallow suture. Skin fine light purple, dotted with yellow, and covered with pale blue bloom. Stalk an inch long, inserted in a small cavity. Flesh greenish-yellow, firm, with a rich, sugary, and most delicious flavour, and separating from the stone. Shoots smooth.

A dessert plum of the greatest excellence, and particularly richly flavoured if allowed to hang till it shrivels. Ripe in the beginning of September.

Queen Claudia. See *Green Gage.*

Queen Mother (*Pigeon's Heart*).—Fruit below medium size, round, and marked with a slight suture. Skin dark red next the sun, but paler towards the shaded side, where it is yellow, and covered all over with reddish dots. Stalk half an inch long, inserted in a small depression. Flesh yellow, rich, and sugary, separating from the stone. Shoots smooth.

A dessert plum. Ripe in September.

Quetsche (*Early Russian; German Prune; German Quetsche; Leipzig; Prune d'Allemagne; Sweet Prune; Turkish Quetsche; Zwetsche*).—Fruit medium sized, oval, narrowing towards the stalk, flattened on one side, where it is marked with a distinct suture. Skin dark purple, dotted with grey dots and veins of russet, and covered with blue bloom. Stalk an inch long. Flesh firm, juicy, sweet, and brisk, separating from the stone. Shoots smooth.

A culinary plum. Ripe in the end of September.

Quetsche d'Italie. See *Italian Quetsche.*
Red Damask. See *Orleans.*
Red Diaper. See *Diaprée Rouge.*
Red Fotheringham. See *Fotheringham.*
Red Imperial. See *Red Magnum Bonum.*

Red Magnum Bonum (*Askew's Purple Egg; Dame Aubert Violette; Florence; Impériale; Impériale Rouge; Impériale Violette; Mogul Rouge; Œuf Rouge; Purple Egg; Red Egg; Red Imperial*).—Fruit large, oval, and narrowing a little towards the stalk; marked with a distinct suture, one side of which is frequently higher than the other. Skin deep red where exposed to the sun, but paler in the shade; strewed with grey dots, and covered with blue bloom. Stalk an inch long, inserted in a small

cavity. Flesh greenish, firm, rather coarse, not very juicy, and briskly flavoured, and separating from the stone. Shoots smooth.

A culinary plum. Ripe in the beginning and middle of September.

(To be continued.)

BED IN A CLAY SOIL FOR AMERICAN PLANTS.

What will be my best plan to adopt in making a border for American plants in a garden where the soil is a determined clay? Must the roots of the plants be kept from the clay by brick rubble at bottom and stone sides? Will or will not bog earth on such a bottom be too dry for the welfare of the plants?—F.

[Where an artificial soil, or bed, is to be made for American plants, clay is the very best bottom, and the stiffer the better. The reason is, that it will not suck the moisture out of the peat, as gravelly, chalky, or very sandy bottoms will always do; but there must be a fall to allow of draining such beds made in clay, as too much water is just as bad for the plants as too little of it. The bottom of such beds need not be drained, as it were, but only a drain carried from the lowest end or side of the bed, without putting anything between the clay and peat, as we drain pots. Therefore, when peat beds are to be on a perfectly level ground, and no means of getting rid of water, the beds must be made on the natural surface, and banks of clay all round them, and then turved. We have made them that way with great success; and we have made them in sheer gravelly places, by first digging out a trench two feet deep, the same shape as the bed, and filling it with puddled clay, then digging out the gravel inside the trench, then putting a foot thick of the same clay in the bottom—but six inches would have been better—and at each end we left a clear space of six inches across the bottom without the clay, and in long beds, a similar open space across the centre. These open spaces of each of six inches were to let off the drainage water. That plan would do in chalk also with moss mulching.]

THE RHODODENDRON.

(Continued from page 397, Vol. XXIII.)

Propagation.—This shrub is increased by—1st. Seeds 2nd. Layers. 3rd. Grafting.

By Seeds.—Where mere increase is only desired, then save the seed indiscriminately from any kinds that produce it most freely; but where improved varieties are wished, then take some care, and hybridise them when in flower. Two or three points are desirable to attend to for this purpose: one is, to obtain such as are perfectly hardy; and the next, to obtain such as bloom late, so that the blossoms will not be injured by late spring frosts; a third point is, to improve the form, colour, and habit of existing varieties. It has been found that the mother, or seed-producing variety, should always have the first property—namely, hardihood. The male parent, or the variety used to fertilise with, may have the other properties—namely, late blooming, good form and colour; and the raiser of new varieties should take care to choose such for the purpose of improving the kinds already in existence. To make sure work he should clip off all the stamens of the species fixed upon to bear seed, and then, when the others to be used for impregnating the mother with are in bloom, he should apply the pollen with a camel-hair pencil, and dust with it the stigmas. If the seed-producing variety blooms before the male parent, then the latter should be forced by a gentle heat under glass into bloom, so as to be in that state at the same time. Apply the pollen on a dry day in the morning, and observe that the pollen adheres to the stigma.

When the seed is ripe gather it instantly the seed-vessels begin to open, or the best seed will be wasted. Common seed may be sown in May on a bed of sandy peat (shaded from hot day sun) in the open air. Cover it as thinly as possible, and water with the finest-rosed pot. Protect from heavy rains by hoops and oiled canvass. I have seen thousands of seedlings raised successfully in that way.

Fertilised, or rather hybridised, seed should have a little more care bestowed upon it. Make a gentle hotbed in spring, and as soon as the heat is moderate cover the dung, or tan, with sand, or ashes; then fill shallow pans with sandy peat made fine and smooth on the surface, and scatter the seed evenly and rather thinly on it; then cover the seed about the thickness of a sixpence, and water very gently with the finest-rosed waterpot; then set the pans on the sand in the hotbed, and give air only behind, shading daily from ten to four till the seed sprouts and the seedlings have made their second leaf; then give more air and less shade; and as soon as the seedlings can be handled transplant them into similar pans in regular rows, giving each a quarter of an inch square to grow in. In those pans they may remain through the winter, sheltered from severe frost in a cold pit or frame. The spring following they may be either planted out in nursery rows in sandy peat, or be, where space and time are plentiful, potted off singly into thumb-pots, and plunged in ashes or sand in the pit, repotting them every year till they bloom. I have, in order to get them on rapidly, placed them in heat and got a first growth; then repotted, and after a month's rest in a cooler atmosphere, placed them in heat again, and thus had two growths in one summer. Where this potting and forcing cannot be done, they may be planted out in nursery rows till they bloom. In time the foliage will begin to show variety, and now the cultivator's mind will be all anxiety to watch progress and receive his reward in the shape of more beautiful and improved varieties. In a batch of several hundreds, if he be fortunate to obtain one really superior, he ought to be thankful. The most common ones will be valuable to plant in masses in the shrubbery. The common seedlings sown in the open air may be allowed to stand in the seed-bed till they are nice little plants, then lift them with balls, if possible, and transplant them in nursery rows a foot apart, and four inches from plant to plant in the row, and there they may remain for two years; then replant again in nursery rows, giving more space to each plant, and in two years more they will be fit to plant anywhere.

By Layers.—This method is resorted to, to increase the dwarf species—such as *ferrugineum*, *hirsutum*, *myrtifolium*, &c., and also for others of large kinds that are common. The way is, to choose low, bushy plants, plant them out at a distance from each other; then, in autumn, peg the branches down and cover them with peat, and if it can be had, with moss also on the surface. In two years those shoots will be covered with roots, and each shoot will form a separate good plant. Take them off in autumn, and plant them in nursery rows for a year, they will then be fit to plant out wherever they are wanted.

By Grafting.—Nurserymen use this method to increase new and valuable varieties that have been proved to be worthy. It is a nice art, and expert hands seldom fail even with one graft. The seed-bed will afford the best stocks. Choose such as have one stem, take them up in autumn, and pot them in sandy peat, placing them in a cold pit. In the spring, make up a good hotbed, and cover it with as many frames and lights as may be needed to hold the stocks. Then, when a little growth has commenced, take off the scions of the kinds worthy of increase; graft by what is called side-grafting, and use the grafting-wax; let each scion be smaller in diameter than the stock. Replace them in the frame as they are grafted and shade closely till the scions have taken. Then give air and gradually inure them to bear light and exposure, and finally cut off the top of the stocks and any shoots there may be below the scions, and then the latter will become the plants. In two years time they will be fit to place where they are to bloom.

Standards may be formed by training up seedlings to the required height, then pot them, and lay them on one side in a warm pit, and graft them in the manner described above, with good varieties; and when the scions have taken, place them upright in a deep pit till they have made some growth. Afterwards plant them out in nursery rows, staking them well till they have made good heads, when they may be planted where they are to grow and bloom.—T. Appleby.

CULTURE OF TRICHOMANES RADICANS, OR IRISH FERN.

This is generally considered to be one of the most difficult to cultivate of any of our British Ferns. Its requiring somewhat peculiar treatment, together with rather more care than the generality of its class, and being not quite so ready to grow in any kind of soil or situation, may account for this supposition, and very few persons, comparatively, are able to succeed with it, although when properly treated and kept in a *favourable situation*, there are few Ferns that are either more readily estab-

lished or more easily managed. I have given away dozens of well-rooted, healthy plants, and with very few exceptions have found their owners, with the few simple directions given at the time, able to succeed with them.

Having now grown it for about six or seven years, and, perhaps, with rather more than ordinary success, I venture to offer, as the result of my own experience, a few remarks, which, possibly, may be of some little service to others desirous of attempting its cultivation, and who may be so fortunate as to procure it for themselves, or receive it from their friends visiting any of its localities, and be at a loss to know how to proceed with it for the best chance of getting it to grow. The largest specimen in my possession, now occupying a wooden tub sixteen inches by twelve inches, covered by a glass shade, which its fronds, ranging up to eleven inches in height, completely fill. This plant came originally from Killarney. A friend, a botanist, who was going to Ireland, very good-naturedly promised to do his best to procure some for me, and after a few weeks' interval a large package containing a confectioner's seven-pound tin canister made its appearance. It was not long in the house before it was opened, and being conversant with the splendid specimens preserved in our collections, I very naturally expected to see a few fine, luxuriant fronds; but my surprise and disappointment may, in some measure, be judged of, when I found only an abundance of damp moss, which formed the bulk of its contents, and a few almost bare pieces of the rhizoma or creeping stem of the plant, very like so many pieces of dead stick. After a short consideration, however, I at once set to work to try and make the best of a bad bargain, as 7*s.* 6*d.* carriage for so unpromising a lot appeared to be. But the sequel proved that my botanical friend, to whose kindness and attention I was indebted for it, evidently knew more of the matter than I did, and was well aware that specimens for the herbarium and plants to grow were very different affairs, and that fine showy pieces fit for the former were not so well adapted for planting as the more shabby looking portions then before me.

In commencing operations, the first step was to procure a common garden hand-light, and as many four, five, and six-inch pots as could be ranged within it without standing upon one another. Then, having picked out every little piece of the plant from the moss, it was apportioned out among them. The pots were each first about one-third filled with small pieces of broken charcoal. Upon this was placed lightly another third of small pieces of *turfy peat* (this may be obtained of almost any respectable nurseryman, as much for sixpence as will suffice for a moderate-sized case), and the pieces of the plant spread out upon its surface. These were now covered an inch in depth with similar pieces of the same turfy peat, and the whole well watered. After they were sufficiently drained, they were placed upon a board, covered with the hand-light, and set in the corner of a small south room opposite to the window. Here they remained with the sun shining upon them for a short time every day, whenever it did shine, for at least six months before any signs of life were apparent. At length here and there a little green knob began to peep up through the soil, and gradually unfolding itself became a frond of two or three inches in height. But as each succeeding frond was an improvement upon its predecessor, the plants soon began to assume a respectable appearance. At this stage, one of the best-filled pots was selected, and removed to a glass-case by itself. Without disturbing its roots, so much of the rim of the pot was broken off as projected above the surface of the soil, and it was placed in the centre of a zinc-box about ten inches square and five inches deep, and the space between it and the side of the box filled with charcoal, moss, and lumps of peat. It was kept in this case for several years until the creeping rhizoma, by spreading over the surface, had caused its fronds to be injured by coming in contact with the glass, when it was removed to, and planted out in the tub, where it now forms the specimen before mentioned. The other portions, as they became "presentable," were potted off, and given away, right and left, among those of my Fern-growing friends, to whom it was a desideratum. A plate of damp sand for the pot to stand upon, and a bell-glass to cover it, form a very good temporary habitation, and, in fact, a small plant may be grown for several years upon a common dinner plate covered by an eight or a nine-inch propagating-glass, and in this way forms a very pretty drawing-room object for a small table. I have one thus, which has been planted upwards of four years, and has now only nine rather small fronds upon it. The mound to which it form a crest, at the present time is covered with a dense carpet of seedling Scolopendrium varieties, forming a pretty contrast to the divided semi-transparent leaves of the Trichomanes. It is also growing, uncovered, in a rockwork-cave at the back of a small conservatory; but although special provisions have here been made for warmth and moisture, it has not yet proved very satisfactory. The object, in each instance, has been, not to grow it to the utmost possible size, but to obtain bushy and compact plants as best suited to a moderate-sized case. With plenty of room and more warmth it may be made to attain a much greater size—eighteen or twenty inches in height, and broad in proportion.

The best kind of situation is where the sun can shine upon it for a short time daily, either in the morning or afternoon; either of which is preferable to the middle of the day. There are two reasons for this: one is, that a small amount of sunshine tends to keep the plant in a healthy and growing state; the other, that by its warmth, the internal air is expanded and set in motion, the circulation of which helps to prevent stagnation and mouldiness. But it is needful to bear in mind that it is not desirable to have as much clear sunshine as would be required to ripen a Cactus, or bloom a Mesembryanthemum, nor to have it all day long, but only for an hour or two, and then for it to be modified by passing through a muslin blind, a stained or painted window, or a ground glass shade, and to have the case kept at some little distance from the window. A position facing the west, or south-west, is much the best aspect where it can be obtained; and were I to build a case specially for this Fern here open to the south and west, I would have the south front, and a screen on the top of ground glass, and in very bright weather stipple it over with paste and soot, so as to give the effect of sunshine through foliage in nature. I know of no more beautiful object in this way than might be formed by having a shallow aquarium at the bottom of a case, and rockwork rising out of it in the centre, with a fountain producing spray rather than jets, and this Fern with its elegant drooping fronds bending gracefully from the stonework. It is a peculiar feature of this Fern, that it can scarcely be overdone with watering. It requires a very damp atmosphere, and luxuriates most in air perfectly saturated with moisture. This is why it is necessary to be kept so closely covered down in our dwelling-houses and conservatories, for the air in these is generally far too dry for it, and would shrivel it up in a very short time. Therefore, under these circumstances it is requisite to have the *upper* part of the case as high as possible, and any escape for the air should be quite close to the surface of the soil, as all fresh air so entering takes up moisture as it passes in. A glass shade or propagating-glass standing on the edge of a plate, is, in this respect, the nearest approach to perfection. I should observe that the leadwork of the hand-light first spoken of, was gone over carefully, both inside and out, with a smooth piece of hard wood, to rub down the lead close to the glass to make it as tight as practicable, and a slight sprinkling was occasionally given to the pots to prevent the soil becoming too dry by the escape of the moisture.

When a plant is growing healthily, the soil may be kept wet rather than merely damp, and the fronds should be often sprinkled from a watering-pot with a fine rose. The frequency with which this will require to be done, will be regulated by the temperature, tightness of the case, and amount of light, &c. From once, in two or three weeks in winter, to once or twice a-day in hot and dry weather, or more frequently, in proportion to the dryness of the surrounding atmosphere. If on a plate, the superfluous water may be drained off by tilting the plate, or sucking it up with a damp sponge; but in all deep cases or stands it is desirable to provide an opening at the bottom, or at the side close to it, to be opened occasionally (unless always kept open, which is preferable), to let off the water; for although the charcoal tends to keep it sweet, and the Fern itself has no objection to being treated as a bog plant, it is advisable to have this outlet to allow of the plant having a regular drenching now and then, as this not only changes the stagnant water already in the soil, but by its mechanical action is also of considerable benefit to it. In doing this, however, care must be taken not to expose it uncovered either to the full sun, or to a cutting wind, but to do it under shelter.

With so much dampness inside the glass, it will readily be understood that if kept in a cold or dark room it will soon become mildewed and covered with mould or fungi. Or if kept in a north room even with a fire constantly in the daytime, it will not do so well as in any other aspect. And although a small amount of sunshine is an important element in its successful cultivation, there can be no question but that *too much* light tends to deprive the fronds of that beautiful rich green which they

assume when grown more in the shade; yet, in an artificial state, it is almost impossible to attain the necessary conditions without it. When growing in its native habitat, these conditions are all provided naturally, and were they not peculiar and somewhat unusual in combination, we may fairly infer that the various species of Trichomanes would be more generally distributed. The abundance of water generally existing in its immediate neighbourhood, serves to maintain the air of the whole district at all times in a sufficiently humid state, and this, too, with a moderate temperature; while the circulation of the air being attained by its contraction and expansion through the successive cold and warmth of alternating night and day, the deepest crevice or most sheltered nook receives its due amount of ventilation. Were the balance to be destroyed either by drainage, cutting away the shelter, or any other interference, we should find the Trichomanes disappearing and giving place to some other plant better suited to the altered condition of the locality. Or were it to be so covered in as to prevent the due circulation of the air, we should have stagnation of the atmosphere and cryptogamic vegetation of a still lower order in the scale of nature. It is these conditions we have to imitate, and it has been only since the introduction of the Wardian Case, that it has been successfully cultivated. In procuring the plant from its native habitat, it is best to select short, stubby pieces, or a few inches of the growing ends, and *as much of the fibry root by which it is attached to the stone or soil as can be got out.* In packing it for the post or portmanteau, most of the fronds may be cut off, as they are generally so much injured as to die away. An inch or so of one or two is quite sufficient to leave. It should be well shaken in water, and the wet thrown out of it, and then laid flat upon a thin layer of damp moss or blotting paper, and covered thinly with a little more moss for protection. It may now be folded up *closely* in a piece of thin gutta percha, or imitation silk, so that the moisture cannot escape, and in this way may be kept for a month or two without injury. All small Ferns are best packed thus, as they take up but little room, and seldom take hurt if left for some time unopened.—W. K. Bridgman, *Norwich.*

NEW BOOKS.

Supplement to the Gardening Book of Annuals. By *William Thompson.* London: Simpkin & Co.—A very trustworthy and accurate description of more than one hundred annuals introduced since Mr. Thompson published his "Gardening Book of Annuals," a most useful book for all who cultivate them.

Culture of Flowers and Plants. By *G. Glenny.* London: Houlston & Wright.—The preface describes the nature of this work in one sentence—"The present volume is one of a series which will contain matter that has appeared in the *Horticultural Journal* and *Magazine*, the *Gardeners' Gazette*, and other works."

NOTES ON SOUTH CALIFORNIA.

What the Spaniards thought of the situation and climate of one of their settlements here, is told by the name they attached to it—Pueblo de los Angeles—("The abode of the Angels.") In general the environs of Los Angeles are without trees; but these gardens are veritable groves of Fig, Orange and other fruit trees, among which even the Date is found, although not abundantly: Almonds and Olives flourish in the greatest perfection. We can thus form a distinct idea of the character of this climate which, besides its mildness, is remarkable by its pure and invigorating air. Those who imagine that slavery is necessary in southern California from climatic reasons, meet with a complete refutation of their theory; for here we have a climate warm enough for the growth of sugar and cotton, in which the whites not only can work, but really do work with pleasure. The gardens of Los Angeles must be seen in autumn: then the golden Lemons and Oranges hang heavy amidst the dark foliage, the Vines are laden with juicy Grapes, industrious and well-dressed people sit in the shade, filling carefully thousands of tidy chests with the delicious fruit, spreading a sheet of fine blotting-paper between every two layers. This elegant carefulness is so thoroughly North American, and yet the whole scene is so foreign to the United States, that I hardly knew whether I had been transplanted. The few Date trees and the Levantine fruit remind us of the East, and yet the manner in which they are prepared for the trade belongs so much to the farthest West, that in this scene the extreme contrasts of the history of civilisation meet in a manner only possible in California. At the time of my presence, Los Angeles had, close to the town and in its environs, 125 vineyards, yielding an average yearly produce of 9,000,000 lbs. of Grapes. One half of this quantity was made into wine and brandy: about 100,000 gallons of wine were produced, of which the gallon was worth on the average two dollars. 50,000 dollars were paid that autumn to the proprietors for Grapes shipped to San Francisco. The Grape grown at Los Angeles is the Malaga Grape, of which either white or red wine is made; but experience has shown that the climate of this region, as that of the State of California in general, is favourable to the growth of all the superior sorts of Grape. There is a choice of situations answering every possible demand, from its northern to its southern frontier, as from the foot of the Sierra Nevada to the sea-coast. The unsuccessful attempts which have been made in the Atlantic States of the Union to cultivate the Grape do not apply to California, since the climatic conditions on the coast of the Pacific are more analogous to those on the western side of the Old World. At all events the sudden and extreme changes of the temperature, which render the climate of the Atlantic States so disagreeable and unfavourable for many branches of cultivation, are unknown in California. The country about Los Angeles will doubtless remain the chief place for the production of wine and fruit on the American coast of the Pacific. The manner in which the old Mexican inhabitants have carried on the culture and preparation of the wine is so imperfect, that a really good produce could not be obtained; but connoisseurs agree that a proper treatment would produce a very superior article, which would be of repute in trade. Some Germans settled at Los Angeles seem desirous of giving their special attention to this subject. In the old Mission-gardens in the vicinity are still seen plantations of Almond, Olive, and Date trees, and new orchards of this kind have been planted lately. Of the fruits of these trees Olives and Almonds are seen on all Californian dinner-tables—the former pickled, the latter as dessert; but I have not seen Dates grown in California, although the tree exhibits a vigorous growth in these southern parts of the country. Probably only the planting of both sexes of the tree sufficiently near to one another is required for the production of Dates, as the climate is favourable to the culture of all other Levantine fruits. The ornamental trees and shrubs of Italy and the Levant would also do well here. Laurels, with trunks of an extraordinary thickness, are found among the evergreen trees growing in the defiles of the mountains on the Californian coast. This species is poisonous, and its exhalations are dangerous; but the classical Laurel of the Old World might undoubtedly be planted in its stead, and the hedges round the gardens of Los Angeles, which now chiefly consist of Willows, might quite as well be formed of Myrtles, Oleander, or Pomegranate bushes, whilst the Italian Pine and Cypress would greatly increase the beauty of the landscape.—(*Froebel's Central America.*)

TO CORRESPONDENTS.

The Shooting Bush (*Bessie*).—It is *Pilea allitrichoides*, a native of the West Indies, and is also popularly known as the "Artillery Plant," and "Pistol plant."

Tarragon Seed (*A Subscriber*).—There *is* such a thing as Tarragon seed, but we question whether any seedsman keeps it, so generally is the plant propagated by parting the roots. It may be so propagated now.

Guano and Salt (*A Constant Reader, N. B.*).—Mixing these together will not injure the guano; but the circumstances must be peculiar to lead to the conclusion that the mixture would improve its effects as a manure. Whether the lime and clay rubbish of the old buildings pulled down would be beneficial to your grass depends upon the soil on which the grass is growing. Such rubbish would benefit the staple of a light siliceous soil into which it was dug.

Grass Seed (*I. S. L.*).—You neither state the nature of the soil, nor whether it is for a lawn or pasture! Like many other correspondents you write as if editors were *clairvoyants.* For a plot 40 yards long and 25 yards broad, intended for a lawn, soil light, 7 lbs. of Grass seeds would be required of the proper species; if a medium stapled soil, 8 lbs.; if a heavy soil, 9 lbs.

Tritoma Roperii Culture (*Baronne Prevost*).—Not having cultivated this plant ourselves, we applied for information to Messrs. E. G. Henderson & Son, of the Wellington Road Nursery, and they reply—"*Tritoma Roperii* is considered the most tender of the species known to us, and generally blooms in pots within a cool conservatory or cold pit, in the spring or early summer months. Keep it in a cool pit or conservatory, with plenty of light, and if the plant be well rooted, it will, with occasional free waterings, soon gain vigour; but as soon as settled fine weather comes in May, plant it out in rich soil. If its appearance indicates weak root action, do not water it over the heart or centre of the leaves, but freely around on the surface soil; and until the growth makes a vigorous start, keep it awhile in a genial temperature by closing up early in the afternoon with sun heat. In October again repot it for cool pit or frame protection through winter."

Sweet's Botanical Cultivator (*M. L. P.*).—This is the name of the book to which you refer. It was published by Ridgway, Piccadilly.

Flower Garden Plan (*Kate*).—You have done that plan exceedingly well, but bed No. 11 is planted with the plants that should be in bed 13, and those in 13 should have been in 11. Here, then, is the rule for criticism —7 is the bed to begin to read the whole plan from; the key bed, by-the-by. *Tom Thumb* Tropæolum is not just good enough for that bed, but the colour is; 6 has the same power as 7; then 5 and 8 make a match pair; 4 and 9 ditto; 3 and 10 the same; but 2 and 11 are not defensible.

Lobelia erinoides (*G. C.*).—No, thank you. There are fifteen kinds, or there were very recently, under that name, and fourteen were wrong, of course including all those sent out by the Horticultural Society, and yours is only one of the fourteen, or another of that stamp. We add the last four to the number, and Mr. Ingram, of Windsor Castle, added seven or eight, we forget which; but the question has no public interest now.

Heating a Greenhouse and Conservatory (———).—We think a Rogers's conical, or other small upright boiler will suit you best. You will require two four-inch pipes on each side of your house—a flow and return. They would be best under your side-tables for plants. The scullery being so low, the pipes through the conservatory part might be below the level of the floor. The one side of the greenhouse and conservatory is the farthest possible from the scullery, and, therefore, in that case, this sinking would be required, if you step out of the house floor on to the conservatory floor; but if the house floor is five inches or so higher than the conservatory floor, the two pipes might pass on that side on the level close to the wall, and you could place a slab over them for a step close to the doorway. The other pipes on both sides might also be side by side on the level, though if the pipes rose an inch or so to the extreme end of the door of the greenhouse it would be none the worse. But if a cistern were placed there at each end, it would not signify. By this mode there would be no dips after the pipes fairly entered the house. T-pieces will be required for flow and return.

Raised Beds in Conservatory—to Accelerate Ivy (*C. H. B.*).—Under the circumstances mentioned in our No. 596, we thoroughly approve of raised beds for climbers; but such raising of borders is not indispensable to success. We do not think they are indispensable in your case, provided free drainage is provided, and the roots are not dried up by the heating pipes. Plenty of water, therefore, must be given when the plants are growing. The covering part of the roots with the pavement will not signify. In fact, there is room enough between the wall and the pavement to grow such plants as you name. We should not expect the climbers on the dead walls, from B C to C D, to thrive so well as in the borders close to the windows and doors. Tastes so vary that we would rather not be responsible as to building the fernery. For such a spot boulders, clinkers, and bricks run together with cement would be best, and to these you might add anything you liked in the way of ornament. Can you take a rim round your bed on the floor—say six or nine inches in height, you might then plunge all your pots in sand, or cover with fresh moss. Your small stages might resemble baskets, and the pots be hid in the same manner. As to inducing Ivy to grow rapidly, prepare a good border of loam enriched with dung and a little lime rubbish, plant good strong plants, fasten them to the wall at first, and, generally, they will fasten themselves well enough afterwards.

Culture of Bouvardias and of Prunus Sinensis (*A Cheshire Subscriber*).—All the Bouvardias, new, and old, and intermediate, require exactly the same treatment from seeds and from cuttings, for young plants and for old plants, and middle-aged plants, as Fuchsias of the same sizes and ages all the year round, or at all events under the hands of ordinary people. But people with more than the common lot of practical knowledge can do extraordinary things with Fuchsias, and with Bouvardias, and many other plants; keep them green all the year round, bloom them in frost and snow, or make standards of them by forced growth when no bloom is practicable, and when other and more sober people's plants are lying half dry in their pots. Treat Bouvardias and Fuchsias both alike, and you need fear no dangers on either side. *Prunus Sinensis* should be pruned just like a *Green Gage* Plum, or any common Plum for kitchen, or like a Damson tree, which is seldom or never pruned if there is room for it.

Names of Plants (*Bracken*).—Your Ferns are—1, Like young *Lastræa quinquangulare*. 2, Appears to be *Onychium lucidum*, but it is too young for determination. 3, *Asplenium flabellifolium*. 4, *Pteris hastata*. 5, *Platyloma rotundifolia*. 6, *Asplenium ebeneum*. (*George Noble*).—It is *Epimedium grandiflorum*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

May 23d and 24th. Beverley and East Riding of Yorkshire. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

June 6th, 7th, and 8th. Bath and West of England. At Dorchester. *Sec.*, J. Kingsbury, Esq., Hammet Street, Taunton.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

PREVENTING FOWLS EATING EGGS—THE BEST LAYERS.

In The Cottage Gardener of March 20th, a correspondent inquires, under the name of "A Fancier," the best way to prevent hens eating their eggs. In reply it is stated, "there is no mode known of preventing this except watching her and taking away the eggs as soon as laid;" and you desire any practical information or suggestion on the subject from your readers. In compliance with this request I beg to offer an expedient that, in my somewhat extended practice, I never yet knew to fail, and one which proved successful even at the time my late sister reared so many Silver Chinese Pheasants, which are notoriously the most inveterate egg-eaters of all fancy poultry when kept within the limits of an aviary. Finding it quite impossible to obtain even a single egg from these beautiful birds, as the cock would stand absolutely waiting when either of his four hens were about laying, and strike his bill into the shell the instant it was dropped, we obtained a dozen or more artificial eggs made of Derbyshire spar, exactly the size and form of the Pheasant's own eggs, and properly stained to render the colour as equally deceptive. They were laid promiscuously about the floor of the aviary, and it was really amusing to see the desperate efforts of all five of the birds at the onset to break them. Of course they could not succeed; and care was taken at the same time to watch diligently for the instant removal of any chance egg they then produced. Finding every attempt quite unsuccessful—in the course of time, as the fictitious eggs were all allowed to remain constantly exposed, this truly depraved habit was forgotten and never returned. Many of my friends, to whom at that time I parted with Pheasants, took advantage of the suggestion as a preventive, which is decidedly better than permitting the habit to be acquired.

In fowls the plan does equally well, if a considerable number of artificial eggs are constantly before them, but one or two are of but little utility. In every case of egg-eating, care should be taken that the birds that have contracted this evil propensity are well supplied with *old* broken mortar from the dressings of bricks from some old buildings, as it tends equally to the welfare of the birds themselves, and the suppression of the annoyance to their owners.

Now I am writing on the subject of poultry, perhaps you will kindly permit me to reply through your columns to a query that has been scores and scores of times forwarded to me and replied to in private correspondence—viz., "What fowls will prove themselves the best layers the year round, simply for size, with quality of eggs, and entirely irrespective of breed or fancy?" Several of my tenants and friends have tested this very conclusively during the last few years; and undoubtedly the most satisfactory produce has resulted from the cross between a Game cock and Golden Spangled Hamburgh hens, or, as they are commonly called, "Pheasant hens" in the midland counties. The cross with Moonies was not nearly so useful; and therefore I am thus carefully descriptive. In the former cross the poultry-yard still carried with it a strong similarity to the Hamburghs, and very respectable appearance, though naturally many of the hens will be single-combed and "Gamey" looking. They attain a very good size—five or six pounds each, and the flesh is of first-rate excellence. I am speaking of hens only, the Game cock being the sole possessor of the harem.

Another advantage from these half-bred hens is, many of them will sit well and rear chickens as attentively as need be; but they are not prone to incubation, or they would not be so profitable as layers. The eggs are of a very good size, and their quality always commands a preference with buyers. Again: the fowls themselves I believe to be of the most hardy that can be met with, laying during the late severe winter without any intermission, and never showing those symptoms of distress and want of condition that most fowls similarly situated would have then exhibited.—Edward Hewitt, *Sparkbrook, Birmingham.*

In the last number of The Cottage Gardener I see a complaint of a "Hen eating her own Eggs," and that there is no known remedy. I have reason to believe that it is owing to a want of lime in her food. On a sandy soil a small heap of lime, to which the poultry have access, is almost indispensable.—E. C.

[It is absolutely necessary that hens have a constant supply of old mortar or other source of calcareous matter; but we do not think that such a supply prevents them eating eggs. Indeed, as stated above, this depraved appetite exists in cocks as well as in hens; and we have known it to be where the calcareous supply was unlimited.—Eds. C. G.]

MR. HORRY AND THE CRYSTAL PALACE POULTRY SHOW.

Your "Moderation" correspondent took upon himself unnecessary trouble in making inquiries in order to give you "a version" of an account already truthfully set forth in my letter of the 6th ult.

I must beg permission to show whether "Moderation" has truthfully given the version of the law and equity bearing upon the matter, when he stated I had "neither upon my side."

Extract of letter addressed to my solicitors by the Crystal Palace Company's legal advisers. "And we trust that Mr. Horry will, on reconsideration, abandon his intention of bringing an action for so trifling a matter, and which can only result in the recovery of nominal damages; and in this expectation, &c."

Thus "Moderation" gave a version of his own, evidently to bring forward a point also, all his own, "your readers will judge with what motives." I am sorry to trouble you thus far upon this subject, but it is difficult to understand how facts can be so perverted.—W. J. Horry, *Islington.*

OUR LARGE BRONZE TURKEYS — HOW WE RAISE THEM.

Our first object is to secure large, strong and well-formed birds; we prefer a male that has seen two winters, and of not less than 30 lbs. weight—we bred from one last season weighing 39 lbs. We also *prefer* old hens; true the young hens lay earlier, but their young are not so strong or as large as from old hens. Hens of from fifteen to twenty pounds are to be preferred. As the time of laying approaches, we turn a few flour-barrels on the side, with one head out; in these we make a nest with leaves, and a few tobacco-stems (as lice do not improve Turkeys), cover the barrel with a few boughs—put into each nest one or two hen's eggs—and leave the Turkeys to deposit theirs, which they will generally do—we remove the eggs each day until the Turkey inclines to sit, then place twenty eggs in the nest, drive two stakes at the mouth of the barrel, and close it at night with a piece of lattice work, made of laths, to prevent the entrance of night-walkers. The first day after hatching we do not feed the young, or allow the mother to leave the nest the first day. On the second day, instead of cooping the mother, we coop the young in a pen made by nailing on to four pieces of posts three by three and eighteen inches long, boards of from fourteen to sixteen feet long. This gives a pen from fourteen to sixteen feet square, and eighteen inches high, that can be easily moved, as it should be, as often as once in four or five days, especially in warm weather, or the Turkeys will become sickly.

For the first week we feed mostly with boiled eggs chopped fine enough for the poults to swallow easily, and with fish-worms cut or broken into small pieces—the latter give more strength, and cause them to grow faster than any other food we have given when young. After the first week we feed on curd made by pouring boiling water on the bonney-clabber, [sour milk,] turning off the whey. We also feed with corn meal ground very coarse, and wet with thick, sour milk, to which we add a little coarse sand to prevent crop bake, with which many young Turkeys die when fed on meal. As soon as they are able to fly over their pen, we allow them to range with the mother in good weather, feeding them a little, morning and evening, if insects are not plenty—we think buckwheat, the best grain to feed with after they are of sufficient size to eat it, as it gives larger size to the Turkeys; but grasshoppers are better, and when they are plentiful no other food is necessary. In stormy weather when the Turkeys are small we drive them into our shed, or barn-cellar, where they are sheltered from the cold, the floor being covered with fine litter—this we think better than a coop, as it gives the young more room, and they are less likely to get crushed by the foot of the mother—we dislike cooping Turkeys with young any way. If any get chilled we give them warmth in a basket by the stove, covered with cotton, and give them a fish-worm or two, and in an hour they are smart again. We once tried pepper on two patients, but as both died within five minutes after, we concluded the Thomsonian system was not good for Turkeys, and have not tried it since. By judicious crossing with other flocks, and the above treatment, our Turkeys have remained healthy, and have never had gapes or any other diseases.—(*American Country Gentleman.*)

BEES AND THOSE WHO HAVE WRITTEN ABOUT THEM.

(*Continued from page* 389, *Vol. XXIII.*)

Bees, probably, are natives of this island, for there is no time of which we have a record in which their honey was not here abundantly—so abundantly as to form the basis of their chief inspiring beverages,—mead and metheglin.

Whether in those Druidical times bees were merely wild, or whether they were so far domesticated as to be collected in hives around the British huts, we have no information. If they were not so domesticated by the Britons, this would soon be accomplished by their Roman conquerors, and it is quite certain that their Anglo-Saxon successors were bee-masters.

So generally were bees kept by them, that by the laws of King Ina, it was ordered that every "ten hides of land shall furnish ten vessels of honey," as rent to their lord.—(*Wilkin's Leges Saxonicæ*, 25.) Honey was thus in request because from it was formed their most usual inebriating drinks. *Pigment* was a sweet, odoriferous liquor, made of honey, wine, and spices; *morat* was made of honey, and the juice of mulberries; but *mead* and *metheglin* were honey and water fermented, and so potent that the monks, always prone to potations as well as prayers, had their quaffings restricted by the rules of the founders of their monasteries,—rules not unfrequently broken or they are much belibelled. Thus, King Ethelwold allowed the monks of his monastery, on their festivals, at dinner a sextarium of mead between six, and the same quantity at supper between twelve of the brethren.—(*Turner's Anglo-Saxons*, iii., 38.)

As to how bees were managed in those days we have no information, for we have no writer who dwells upon this subject, until we come to the year 1539. In that year, Sir Anthony Fitzherbert, of whom a memoir will be found in our sixth volume, page 121, published his "Boke of Husbandry," and in it is a pithy chapter of which the following is a literal copy:—

"Of bees is lyttell charge, but good attendaunce at the tyme that they shall cast the swarme, it is conuenient, that the hyue be set in a garden, or an orchyarde, where as they may be kepte from the northe wynde, and the mouthe of the hyue towarde the sonne. And in June and July, they do most commonlye caste, and they wolde haue some lowe trees nyghe vnto them before the hyue that the swarme maye lyght vpon, and whan the swarme is knytte, take a hyue, and splente it within with three or foure splentes, that the bees maye knytte their combes thereto, and annoynte the splentes, and the sydes of the hyue, with a lyttell honye. And if thou haue no honye, take swete creame, and than set a stole or a forme nyghe vnto the swarme, and laye a clene washen shete there vpon the stole, and thanne holde the smalle ende of the hyue downewarde, and shake the bees in to the hyue, and shortely sette it vppon the stole, and turne vppe the corners of the shete ouer the hyue, and to leue one place open, that the bees may come in and out: but thou mayst not fight nor stryue with theym for noo cause, and to laye nettyls vppon the bowes, where as they were knytte, to dryue them from that place, and too watche them all that daye, that they go not away, and at nyght, whan al be goone vp into the hyue, take it away, and set it where it shall stande, and take awaye thy shete, and haue claye tempered to laye aboute it vppon the borde or stone, where it shall stande, that noo wynde comme in, but the borde is better and warmer. And to leaue an hole open on the south syde, of three inches brode, and an inche of heyghte, for the bees to come in and out. And than to make a couerynge of wheate strawe or rye strawe, to couer and house the hyue about, and set the hyue two fote or more from the erthe vpon stakes, soo that a mouse can not come to it, and also neyther beastes nor swyne. And if a swarme be caste late in the yere, they wolde be fedde with honnye in wynter, and layde vppon a thynne narowe borde, or a thynne sclatte or leade, put it into the hyue, and an other thynne borde wolde be set before euery hyues mouthe, that no wynde come in, and to have foure or fyue lyttell nyckes made on the nether syde, that a bee maye comme out, or go in, and so fastened, that the wynde blowe it not downe, and to take it vp whan he wyll. And that hyue that is fedde, to stoppe the mouthe cleane, that other bees come not in, for if they doo, they wyll fyghte, and kyll eche other. And beware, that noo waspes come in to the hyue, for they wyll kyl the bees, and eate the honny. And also there is a bee called a drone, and she is greatter than another bee, and they wyll eate the honny, and gather nothynge; and therefore they wolde be kylde, and it is a sayenge, that she hath loste her stynge, and than she wyl not labour as the other do."—G.

(*To be continued.*)

BEES: THEIR LARVÆ SPINNING COCOONS.

Acting on the principle that "seeing is believing," I have never doubted the fact that cocoons were spun by the larvæ of the bee. I now learn from Mr. Wighton in last week's Cottage Gardener that the larvæ are "too tightly fixed in their cells to turn round and spin cocoons," and, of course, forthwith dis-

credit the evidence of my own senses, as well as the authority of those apiarians from Huber downwards who have testified to the fact. Unfortunately for the new doctrine, it cannot be denied that breeding-cells receive a very perceptible lining which consists of thin silken pellicles exactly as described by Huber and other less eminent observers. I now enclose a few specimens for the Editors' inspection. It will be perceived that they retain the shape of the cells, although devoid of the least particle of wax; and I am desirous of being informed to what cause we are to attribute them, since we are now taught by Mr. Wighton that the received opinion is altogether erroneous; although I honestly confess that its correctness has never been doubted by—A Devonshire Bee-keeper.

[The cocoons sent to us by our correspondent are those which every one must have seen in the brood cells. We have no doubt of the bee-larvæ forming cocoons. Those accurate observers, Kirby and Spence, point out the difference in the cocoons made by the grubs of workers, drones, and in a royal cell.—(*Introduction to Entomology*, ii., 138.)—Eds. C. G.]

INCREASE OF LIGURIAN STOCKS, &c.

It will not be amiss that I should mention *pro bono publico* the plan which I shall most likely pursue (as it now appears to me the best, looking to the probable condition of my apiary) when I receive the two Ligurian queens, which I have requested our friend the "Devonshire Bee-keeper" to supply me with. As I hope that they may both contrive to reach me at the same time, my plan is simply this—to select the two best and most forward stocks in my bee-house, that may not have swarmed yet, and to drive out about half of the population of each in the middle of the day. These two half-swarms, each having their old queen, will be united together in the evening, and transferred to a new site in a new hive. The two parent queenless and partially-driven stocks (remaining each in its original place in the bee-house) will also the same evening, or earlier in the day, have the usurper Ligurian queens given to them in the manner recently detailed (at page 390, Vol. XXIII.) by our Devonshire friend. By this means I shall gain a good swarm of common bees, which shall form the nucleus of a reserve apiary in case my experiments with these Ligurians should fail by accident or otherwise. At the same time the Ligurian queens will find themselves mistresses of well-filled and vigorous stocks, ready to give swarm again at no distant day. As it is my present intention to replace all the queens in my bee-house (six in number) with Ligurians if I can possibly do so, I propose to repeat this process with all my other hives in the course of the summer, varying the mode of operation according to the circumstances of my apiary at the time. If the Ligurian stocks (as they will then be called) should be inclined to swarm naturally—*i.e*, if I should on examination see young royal brood in a forward state in these stocks, I would immediately anticipate or hasten their swarming by driving first the two Ligurian queens with a very few bees into separate hives, and then any two other common stock with about half the bees in each, all which I would proceed to treat in the manner already detailed above, gaining another swarm of common bees, &c. If it were not that my bee-house is already stocked with bees I would drive the Ligurians, with a full swarm to each, into empty bar-hives, from which I might breed almost any number of young queens in the manner recommended by me at page 76 of the last volume. Unfortunately, I have not a single bar-hive in operation in my bee-house, as I was obliged last year to stock it as best I could with such chance material as I happened to have at hand.

I may add that I never knew so late a season for bees; at this date (March 22) I have not seen a thimble-full of pollen carried into any of my hives.—B. & W.

BEE-HOUSES AND BEE-BOXES.

At page 401, in your last volume, is a communication on the subject of bees and bee-hives, under the signature "A Young Apiarian, *Bagshot*." It may be pardonable in one who evidently has had but little experience, to ask for information; but random assertions from such a quarter are apt to mislead others, and with your permission I will make one or two remarks. First, as to bee-houses, and the nonsense about "bees never doing any good in them." It may be true that such erections as cottagers in general are likely to have are not the best of their kind; and where this is the case separate stands are most advisable. Writing especially for cottagers, the late Mr. Payne thought so. Mr. Taylor is spoken of as opposed to this. His book, "The Bee-keeper's Manual," (fifth edition), on the contrary, gives more full illustrated directions for the construction of stands, pedestals, and covers for separate out-door hives than is anywhere else to be met with. The author, moreover, remarks, "The common wooden bee-stands, as usually constructed, open in front and closed altogether behind, retaining the sun's heat as an oven, are objectionable. These are frequently the receptacles of dirt and vermin, and most inconvenient to operate in." Mr. Taylor proceeds to describe an improved bee-house, opening at the back, somewhat on the plan approved by Dr. Bevan, except that the latter was varied in form as a mere matter of taste and convenience. Mr. Golding, in the "Shilling Bee-book," says, "Those apiarians who step at all out of the beaten track, should provide themselves either with a shed or enclosed apiary;" and he goes on to give the details of such an erection with folding-doors behind. The fact is, that the main question is one for the pocket, and not to be decided without consideration of various contingencies. Where the assertion put into the mouth of Mr. Payne, that "wooden hives are apt to give dysentery to bees" is to be found in his writings I do not know; but I have seen such in use, and very healthy ones, too, in his apiary. If the "Young Apiarian's" experience is unfavourable, is he sure that he understands their proper management? Dr. Bevan, in his long experience, preferred hives of wood, though others like straw, and especially on the ground of expense. Mr. Taylor observes, "It is not our object unduly to magnify the advantages of wooden hives at the expense of those of straw; prejudice exists on both sides of the question. They are each valuable according to circumstances and their intended uses." As to your correspondent's assertion that Mr. Taylor "says not a word on the subject of dysentery," if he will take the trouble to refer to the work I have before alluded to, he will there find a section on that disorder, its cause, and the remedy; and it may take place without due care in any kind of hive. But it so happens that the last volume of The Cottage Gardener, page 406, supplies some information addressed in reply to "A Beginner" on this very point, which may be of use to the "Young Apiarian."—An Old Bee-master.

OUR LETTER BOX.

Characteristics of a Buff Cochin-China (*Cochin*).—It is not essential that there be no black feathers in a Cochin pullet. Marks in the neck, tail, or wings, are not disqualifications: it is better to avoid them if possible. The principal points are—sharp, clever head; straight, upright comb, with deep and numerous serratures; short legs, well feathered; and heavy fluff.

Antwerp Carriers (*Capercaillie*).—We do not know of any on sale. You had better advertise for them.

Dorkings—Spanish—Brahma Pootras (*A. B.*).—Of Dorkings the Grey are larger than the White, and we believe that the latter, in common with most Albinos, were originally a sport from the Grey. The flesh of the White Dorking is not better, in any respect, than that of the Grey. If Spanish hens are allowed to run with Dorking cocks, a cross is inevitable. The eggs of the Spanish, however, will not be altered either in size, quality, or appearance. Some good authorities consider the Brahma Pootras a distinct breed, others, with whom the writer of this coincides, have no doubt they are a variety of the Cochin-China, and, probably, a cross between the latter and the Malay. We cannot say what would be characteristics of chickens raised between Brahma Pootra hens and a Dorking cock. Chickens between a Cochin-China hen and a Dorking cock are very much like Brahma Pootras. The colour of the egg-shell in no instance is altered by the male bird; it entirely depends upon the ovarian secretion of the hen.

Paying Cottagers for Rearing Chickens (*E. N. N.*).—Much depends on the conditions entered into. If the cottager find everything, and keep the chickens till four months old, he should not have less than 4*s*. per head. A shilling per month is the usual price; and it is worth while to give a trifle more where unusual care has been taken, and success has been the result. At this season of the year we like our chickens to remain as long as possible with the hen—certainly not less than seven or eight weeks.

LONDON MARKETS.—April 2.

POULTRY.

Good poultry is still scarce, and prices are consequently on the advance. For a time there is an evident lack of first-class goods.

Each—	*s.*	*d.*		*s.*	*d.*
Large Fowls	6	0	to	7	0
Smaller Fowls	4	6	„	5	0
Chickens	4	0	„	4	3
Geese	0	0	„	0	0
Goslings	7	0	„	7	6
Ducks	0	0	„	0	0
Ducklings	4	6	„	5	0

Each—	*s.*	*d.*		*s.*	*d.*
Turkeys	0	0	to	0	0
Guinea Fowls	2	6	„	3	0
Pigeons	0	8	„	0	9
Hares	0	0	„	0	0
Leverets	2	6	„	3	0
Rabbits	1	4	„	1	5
Wild ditto	0	8	„	0	9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	APRIL 10—16, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun	Day of Year.
10	Tu	Easter Tuesday.	29.323—29.222	59—36	S.W.	.01	17 af 5	46 af 6	17 0	19	1 13	101
11	W	Holosteum umbellatum.	29.403—29.211	54—37	S.W.	.01	14 5	48 6	15 1	20	0 56	102
12	Th	Empetrum nigrum.	29.622—29.281	51—37	W.	.34	12 5	49 6	53 1	21	0 40	103
13	F	Betula alba.	29.404—29.308	47—26	N.W.	—	10 5	51 6	26 2	☾	0 25	104
14	S	Princess Beatrice born, 1857.	29.470—28.944	52—35	S.W.	.36	8 5	53 6	49 2	23	0 10	105
15	Sun	1st, or Low Sunday.	29.468—29.141	50—27	N.W.	.08	6 5	54 6	6 3	24	0 af 5	106
16	M	Buxus sempervirens.	29.651—29.590	46—27	N.W.	.07	3 5	56 6	20 3	25	0 20	107

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 56.5° and 36.3° respectively. The greatest heat, 75°, occurred on the 16th, in 1858; and the lowest cold, 20°, on the 16th, in 1847. During the period 121 days were fine, and on 110 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Take every opportunity of eradicating *weeds;* hand-weed where practicable, as it is more effectual than hoeing and raking when the soil is moist. Cut the *Box edgings*, and keep the *walks* well rolled. *Basil* may be sown on a warm-sheltered border in the open ground; but, as it is rather a tender annual, the best plan is to sow it in pans, or on a slight hotbed, to be afterwards planted out. *Beans* (*Broad*), earth up the early crops, but before that is done lay a little soot close to the stems, to save them from slugs and snails; earthing up in good time will also prevent the cold winds from damaging them. *Broccoli*, make a general sowing towards the end of the week; by sowing early there will be time for a second sowing in case of failure. *Cabbages*, stir the soil between the plants, and earth them up. *Carrots*, when sowing the main crop, put in the seed rather thickly, as it is more liable to failure from many causes than any other kitchen-garden crop. *Celery*, make the main sowing for the winter crop. *Cucumbers*, keep a brisk heat in the beds; give air daily, more or less, according to the state of the weather, and keep the lights free from dirt; fumigate if green fly or thrips appear. *Kidney Beans*, give the bearing plants a good supply of water at the roots, and frequent sprinklings over head. Make a sowing on a warm sheltered border where the soil is light and suitable for early crops. A sowing may be made in pots for planting out as soon as all danger from frost will be over. *Lettuce*, give air to the plants in frames night and day in mild weather; stir the soil about the plants in the open ground. *Onions*, sow the Silver-skinned on a poor sandy or dry piece of ground for picklers; plant in rows the autumn-sown, or those sown in boxes the early part of the year; draw shallow drills, and lay the roots of the plants in them at regular distances, covering them with fine soil. *Peas*, sow Knight's Dwarf Marrow, or any other such approved sorts. *Radishes*, keep up a regular succession by sowing once a fortnight. *Sea-kale*, remove the covering as soon as it is cut or done with; if there is any yet remaining to be covered the sooner it is done before it grows much the better. *Scotch-kale*, make a sowing for the first crop.

FLOWER GARDEN.

Roll and mow the *lawn;* turn and regravel *walks*. Any alterations on hand, or intended, to be finished, and ready to furnish with seeds and plants in proper time. *Annuals* (*Hardy*), sow in patches, as advised last week, or in drills, as may be required. *Anemones*, finish planting, for late bloom. *Carnations*, finish planting in pots, beds, or borders. *Pinks* may still be planted. *Tulips*, shelter the choice sorts from hail or heavy rains with an awning if possible. *Wallflowers*, sow seed, and propagate the double kinds by cuttings of young shoots.

STOVE.

A kindly growth to be encouraged by means of a warm and moist atmosphere. The plants that grow very rapidly to be placed near the glass. The stock may be increased by putting the pots of cuttings in a hotbed. The genus *Cacti* to be now liberally supplied with water. The plants lately shifted to be watered with great caution.

GREENHOUSE.

Repot any plants that, from their rapid growth, require it; to be also supported with a few sticks, if necessary, allowing them at the same time as much as possible to assume the forms they would naturally take. Turn each plant frequently round, that it may not become one-sided. During bright sunshine damp the paths, to produce a gentle humidity.

PITS AND FRAMES.

Pot off *cuttings* of Verbenas, Heliotropes, Petunias, and all other sorts of bedding-out plants. Pot alpine plants, if not already done; give them plenty of drainage. Give air liberally to Auriculas, to strengthen the flower-stems; thin the pips where they are too crowded, and give them a little manure water occasionally.

Pot off *Dahlia cuttings* that are rooted. Continue to strike cuttings of those plants which are most required; these may be turned out of the cutting-pots and planted in beds in due time. Propagate Heartsease by cuttings. Give half-hardy annuals the benefit of the air, and of mild showers of rain. W. Keane.

ANNUALS FOR BEDDING AND CUTTINGS FROM THEM.

All the kinds of French, English, German, and Cape-of-Good-Hope Marigolds will do perfectly well in beds and in patches, in rows and clumps, from seeds sown in the open air on a warm south border, any time from the tenth day of April to the twentieth day of May, and may be for a month later or earlier; but of that my own experience does not furnish me with proof.

All the kinds of annual Tropæolums, including the "Canary Bird," do equally well under that treatment; and every one of the China Asters, whether English, French, German, or Italian, or non-Italian, the same.

It was my own practice for many years to sow these and other choice annuals at three different times, beginning, invariably, on the 10th of April, be the season late or early, cold or genial. The place for sowing these was the most sheltered and the warmest about the place. The ground, a south-wall border, was rough dug at the fall of the year; and every time it was dry during the winter after a storm or hard frost, it was dug afresh, and some mixture of light refuse from the potting-bench was added each time, and the surface was left as rough every time as at the beginning of winter. About eighteen inches were left for a wall border, then a foot-wide alley, the rest of the border being set off in four-feet-wide beds and foot-alleys between them. All the seeds were sown in drills from an inch to two inches apart, drill from drill. The way the drills were made was by placing the measuring-rod—five-feet rod, six-feet rod, or more-feet rod—

near the edge of the first bed, then drill down the side of the straight edge with the forefinger of the right hand; my finger had some rough usage of this nature in my time; so that a ring on the finger would be just as awkward to us and ours, as would be a ring in the gristle part of the nose of a pig or sow getting into a Kale-yard—it would hinder the natural working of the whole set of fingers, or any one of them at a push, like getting ready this branch of drill husbandry.

When the seeds were very small, sifted soil was put into the bottom of the drills, and the seeds were covered with the same; every drill was just one inch deep and no more, and in filling for these small seeds the drill was made almost level, but not quite.

All the Portulaccas sown this way on the 1st of May, would bloom from August till the frost came. The whole of the little blue Lobelias the same; *Mesembryanthemum tricolor*, so called, and the common, but the best of the common garden Balsam, both do easier that way than any other way I know of—that is, for those who are not regular gardeners. But for this last batch of beauties, the eighteen-inch space between the alley and the wall used to be the beds for getting them up, and they were sown broadcast. When the sun was very hot, or the weather very cold, common roofing slates were set up leaning against the wall to screen the close-to-the-wall seedlings, and hoops put over the beds on the border as soon as they were sown, but nothing was ever put over the hoops for shelter till the seedlings began to appear. I have had the snow a foot thick over such beds on the first, second, and third days of April, 1830, in the heart of England, and the glass down to 22°, or showing 10° of frost, more than once, without ever perceiving that I lost a single seed by snow or frost with no covering. There were only three years, for the last thirty, in which I did not prove every word of this, more or less, and, of course, with different sorts of seeds.

But what I was going to say at the beginning was, that I had tried the same experiment this year also, with "very choice golden-striped double French Marigolds," which the Messrs. Stuart and Mein, nurserymen and seedsmen, Kelso, or what you might call, "the blue bonnets over the border" between the Scotch and the English, sent to me through the office of The Cottage Gardener. The gardeners at the Experimental have sown the same kind of fine-striped Marigold, in heat, from a packet which was ordered from Kelso a month before my packet arrived. We shall thus see which will give the best and most marked stripes in the seedlings—the mild hotbed, or the open border-bed. We shall also count what the difference will be in time of coming to bloom of both lots, a thing I never marked down before. Even now it is a mere chance experiment, for we had no idea of trying it at the beginning of the season—nor till the second packet came and prompted the suggestion. But the main purpose of the whole story is meant more for the use and benefit of those of our readers who have little or no glass, and nothing in the way of a hotbed or extra heat; and who may have read or heard of the silly stories which have been hotpressed, printed, and published, anent this subject, to the effect that one must either have a hotbed for half-hardy seeds, or put off the sowing of them till after May-day. But I vouch for it, and would pledge all my buttons on the strength of it, that every seed herein mentioned, and, of course, every other kind of seed in the whole world which is of the same degree of hardiness as any one of these, will do just as well in hooped beds as in hotbeds, with ten times less trouble, and with double the chance of bringing all the seedlings to the flowering-point. The only difference in favour of heat is, that you get the plants sooner to market, so to speak. But then that difference implies the strength of practice to be able to manage the nursing. Our columns for "Answers to Correspondents," however, tell a different tale—tell of the wide-spread of a longing for gardening, in the absence of the smallest degree of practical knowledge about the rearing of seeds and many other points about a beginning.

There is another move well known to gardeners, which has never yet been sufficiently treated of in books, but which deserves attention in such a season as this, and I shall instance it by these striped Marigolds and Alonsoas, as *Alonsoa grandiflora* and *Warczewiczii*. These, and many like them, grow too rank or too much to leaf, and shoot from spring-sown seeds; but plants of them kept one season in pots, to take cuttings from for next season, produce a young stock which grow much less to leaf, and bloom far better than the same kind do from seedlings. Well, by taking advantage of that property of plants from cuttings, we make cuttings of the tops of such seedlings late in the spring, or as soon in April as the seedlings of that spring will afford the cuttings; also, a second and a third crop of cuttings. Then throw away the bottoms, or real seedlings, and plant out from cuttings only, and it is often surprising what a difference that makes in the habit of the plants. I mean this season to have two crops of this fine-striped Marigold, the one from the seedling plants, and the other from cuttings of the tops of the seedlings; and I am quite certain, unless the kind is very dwarf indeed, that a bed, or a row, or a patch from the cuttings, will be as superior to the seedlings as this kind is said to be over the common French Marigold.

When Anagallises are raised from seeds, few plants are seldom more weedy-looking than they, even should the kinds come true from seeds: they are, therefore, good subjects to prove this doctrine. The American Groundsel never comes true from seed—I mean the very double ones; but try a packet of it as is here suggested, and my word for it you will have a nice unique bed from the sporting. A few days will root the tops of all your seedlings of it; and if you want to make more sure of the game, or wish to test this kind of gardening, take the tops of your first cuttings to make a bed of, that is the third remove from the seed character. I had practised this many years back—first with *Alonsoa grandiflora*, then with these very Groundsels, and one year from a packet of seeds I had from Mr. Carter, of High Holborn. I had what you might call a regular Cineraria-looking bed till the frost came—some double flowers, some half-double, and some as single as a wild Daisy, and more colours than are in the rainbow; but if I had planted the seedlings they would have made a perfect mess of it.

I never tried *Alonsoa Warczewiczii* that way, because I was out of practice when it came in; but I have no doubt it would turn out quite a different thing from very late spring cuttings. Already, and a long time back, I recorded having kept two kinds of the French Marigold for twelve years in succession from cuttings—a double pure yellow one and a fine brown double one; and of all the experiments I ever tried that was the most trying to make both ends meet. Young cuttings of them struck in the autumn would only keep well on a high shelf in a stove. It was impossible to keep them from blooming the whole winter; and that exhausted them so much that there was hardly any life in them in the spring, but every morsel of them would root better than any other kind I ever tried; and if I once got two good cuttings rooted in March, there were no fears about a bed of them that season. The end that was aimed at in that twelve-years trial was to see if plants, so far removed from the seedling nature, would come more true from seeds than at the first—in short, to ascertain if it were possible to fix the doubleness and the colours permanently. Nothing of the kind, however. After the sixth year seeds were saved yearly from the two kinds; and they came, like as of old, of all manner of sorts—some double, some not, and some of all colours. And the aim of this edition of the story is, to warn others from attempting to keep

Marigolds over the winter from what is here suggested, or rather revived from an old practice.

Who will try a batch of Zinnia cuttings this very spring to see if we could have them under eighteen inches high? I never tried them, and I never knew that they would not come true from seeds if justice were done to parentage until Mr. Fish gave the result of his experiments upon them; and that saved me a world of trouble, for I was just on the point of trying the same experiments, the Zinnias being generally extra at the Experimental, also great favourites there.

And now would be a good time to try another most worthy experiment by scores and scores of people. The trouble will be nothing as compared with the results of many trials at the same time. I mean to make cuttings of all the young tops of *Delphinium formosum* before April is out, and to make a second lot of May cuttings, also to plant out after the first batch have flowered. Root both lots as fast as your means will allow, put each rooted morsel in the smallest pot, get it potbound in the hardening off, and plant out the ball entire, and only six inches plant from plant. Surely these will bloom dwarfer than divided plants or seedlings. They may be later in blooming; but if the plan is worth following out, that could be remedied in future by beginning earlier. We are in the background entirely, and altogether about blue flowers for bedding.

The only ribbon-line in blue is the dwarf blue Lobelias. I once, and only once, had a splendid row near the back of the border of *Salvia patens*. The way I did it swallowed up one thousand and some odd plants, all seedlings, late the previous summer. I took a bottom width of eighteen inches for that one row, and planted three rows of plants in it, none of them more than six inches apart. They were allowed to stand upright; and to keep them upright as volunteers are to be, I had to put in neat stakes, at six feet apart, along the front and back of them, and to run a tarred twine, from stake to stake, the whole length, and in such a way as not to be seen from the walk. Some people talk about beds and bedding plants, as grooms do their beds in the stables. It is a bed, or a bedding thing with them, and with these grooms, if they have a horse, or a donkey, or any thing on all fours. But in reality a bedding plant is no more a bedder than I am, unless it lasts in bloom to the end of the season.

Farfugium grande will make a grand front row for particular patterns of ribbon-borders. It is as hardy as the Scotch Crocus, and multiplies just as fast; but the first pincher will hurt or kill the leaves in the autumn. My plant in the front garden was much admired last autumn; the first severe frost killed all the leaves. The crown of the plant is not quite half an inch below the surface; the whole bed was frozen as deep as the roots, and no sort of protection. In order to prove this plant, it was just one month behind *Dielytra spectabilis* in showing through the ground, and it is now as free and fair as a Coltsfoot—an evergreen in-doors, and a winter rester in the open air. But Mr. Ford, our first boot and shoe merchant in Surbiton, has had the Zebra plant which goes, commonly, under the name of *Tradescantia zebrina* these three years in a hanging-basket in his front shop, with a bunch of *Isolepis gracilis* in the centre of the basket with no more artificial heat than the gas till bedtime.

Recollect that Mr. Kinghorn has proved *Nierembergia gracilis* to be one of the best hanging-basket plants we have. Old, straggling, long, wiry-looking plants of it are best for the purpose. Young ones are only fit for one of the neatest beds on the corner of the lawn. And do not forget, in these busy days, that the hardy variegated *Deeringia Amherstia* is one of the very best pot plants for exhibition in the variegated classes of plants, provided it is done the right way; and the way to do it is, to cut down every living morsel of it to the surface of the ground, in the spring, just as I did my *Deutzia gracilis*, now nine years old, and, perhaps, the finest in the world just now. To give the variegated Deeringia as much pot room and the same soil as the variegated Hydrangea requires; and when the young sucker-like shoots arrive at from six to ten inches high, to begin to stop some of the strongest and some of the weakest of them, so as to have a bushy plant from the rim of the pot up to the top. D. Beaton.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(*Continued from page* 4.)

THE DAIRY.

The management of the dairy has in all ages been a subject worthy the attention of even those who generally consider it beneath their dignity to acknowledge acquaintance with household duties; but as all like good cheese and good butter, as well as the materials these useful articles are made from, a few words here may suffice to describe one or two important features in this department of household economy—especially as the knowledge of good cream, good butter, and good cheese seems tolerably well diffused, and anything below mediocrity is sure to entail vexation on the part of the unfortunate manager. But as our "Two-Acre Farm" cannot pretend to make cheese on any principle excepting for novelty's sake, the *modus operandi* need not be gone into here; but the general management of the milk and the making of butter are important to know.

We will commence with the dairy-room, which ought to face the north; and if slightly sunk under the ground level—say two or three feet, so much the better. A latticed window is necessary, with a glass shutter for very severe weather; and if there be two windows so much the better, as good and thorough ventilation is absolutely necessary. Slate or stone shelves are better than wood; and the floor ought either to be of stone or brick, to allow of being frequently dampened when necessary. One of the best dairies I ever knew had a stream of water running through it, but this cannot always be had. Great cleanness, however, is essential as well in the dairy itself as also in the various utensils; and the washing-up, or scalding, ought always to be done in another place. The dairy milk-pans may either be of glass, earthenware, tin, or wood; but the latter has gone much out of fashion of late years in consequence of the trouble in cleaning. Glass is also not so much in general use as it promised to be, its liability to accident being one drawback to its use. A good well-glazed earthenware pan answers very well, as likewise does tin; the latter is almost in universal use in the west of England. Wooden or tin pails are used for milking the cows in, and the moulds for butter are invariably of wood; but the general management of the milk in different counties varies so much, that one or two examples known to the writer may be recorded here as examples.

In the west of England, Devon and Cornwall, the new milk on being brought in is strained into tin pans of about fourteen inches diameter, each pan containing five or six quarts. These pans of new milk are set away for twelve hours, when they are subjected to the process of "scalding," and then are set aside to stand twelve hours or more longer, when the cream is removed by carefully skimming it, and the milk is taken for use. The scalding is effected various ways; but the best that I have seen was a sort of trough like a hot plate, with circular holes in the top of it to receive two or more milk-pans, which were of tin, and of such a size as to sink half their depth or more into these holes, so that their bottoms were one or two inches in the water, which was kept about a boiling-point by the fire below. These pans were allowed to stop there, until, by a certain blubbering on the surface

of the cream, easily known to a practitioner, the milk is supposed to be warm enough, and is removed to its place in the dairy and another pan put on. But to those who may never have seen the operation done, it is proper to caution them against heating the milk too much, and on no account let it boil; about 110° or 120° of Fahrenheit are sufficient, but the rising of globules to the surface indicates when it is to be taken off better than anything else. When the pans are taken off they are allowed to stand twelve hours longer in summer, or twenty-four in winter, before the cream is skimmed off, being about the same space of time as occurs between the milking and the scalding process.

Although the Devonshire plan detailed above is fast gaining ground, and has many points in its favour, it is far from being universally approved of. A long adherence to other methods, with some reason for doing so, ought not to be too hastily condemned as being only followed through prejudice. Milk when strained and set away by itself produces quite as much cream as when the scalding process, as it is called, is gone through; but it does not keep sweet so long. But in the cooler districts of the north it is seldom subjected to fire heat, the practice there being to occasionally stir (say every five minutes or so), the new milk in the milking-pails that are not being milked into to prevent the cream from settling to the top until it has been skimmed, and, in fact, until it has cooled down to something like that of the atmosphere; when it is skimmed into the pans, and then set carefully away—in summer for twenty-four hours, but in winter thirty-six or forty-eight, as the case may be. All this is done in a systematic way. The cows are milked every twelve hours; and supposing the milk to stand thirty-six hours before skimming, the pans are never moved during that time; but when the new milk is set up a mark is put upon those pans that are there, or else on the shelf immediately underneath them. Very often a piece of chalk is used, and a mark "I" indicates that the pan has stood twelve hours; while "No. II." (two chalks) is for twenty-four hours, and so on. This plan, or any similar one, will easily suggest itself to the operator. The cream, where there is only one or two cows may collect for three or four days in summer, or twice that time in winter before churning, when it may be made into butter by any of the popular churns, of which there is great variety now; taking care in warm weather not to hasten the operation by a too quick motion, but in very cold weather this is not so likely to do harm.

Of the washing or cleansing of butter much has been said and written; but it is certainly a standing reproach to our country that it is no where so well done as in Belgium; and if our information be right, no water is used there, and yet their butter keeps longer sweet than any of ours, little or no salt being used either.

In some parts of England it is customary to churn the whole of the new milk, which is only kept two or three days to obtain a quantity; or, in some cases, the last portion of milk a cow gives at each milking is added to the cream, and the remainder is skimmed after standing the usual time. These plans and many others have all their especial good points, and in their respective localities are doubtless the best; but as skimmed milk is more useful than butter milk, the amateur had better try the other plans before adopting this.

In a work like this the process of cheese-making need not be entered into; as the milk of one or two cows, which our "Two-Acre Farm" can only furnish, cannot well make cheese, except very small ones, and no written description of this process can fully explain all that it is necessary to learn in this department of dairy duties. We therefore dismiss this, with a recommendation to those who may wish to be further informed in these matters to inspect some of the dairy farms in the western and central counties of England, where cheese of the best quality is made, superior to that of any other country in the estimation of most connoisseurs of this favourite at table.

As some will be anxious to know the quantity of milk they may expect a cow to give on an average throughout the year, I may observe that in a herd of from eleven to fourteen cows, kept in an ordinary way on grass and hay only, with a view to produce good milk rather than a great quantity, the average produce was about seven quarts each per day throughout the whole time, a number of years being taken into the calculation. This may perhaps appear low; but it is to be observed that in a general way a cow is two months quite dry, and after calving the calf requires the most of the milk for a like period or longer, and now and then a cow will miss having a calf. All these deductions of course keep the average down; and in the case alluded to, which came under my own notice, half of the cows were Alderneys, or partly of that breed, and no attempts were made to increase the quantity of milk at the sacrifice of its quality. J. Robson.

(To be continued.)

NEW HARDY BIENNIALS.

Many of these, if sown very early, flower the first year. Some of them become perennial by propagating them (to preserve the true varieties) by cuttings or layers. The proper way to keep up their biennial character is to sow them in July, and transplant them in beds or patches in September, where they are to bloom. It is somewhat singular that we have no new species of biennials that are hardy: all that are new are varieties of old species.

Campanula medium flore-pleno cœrulea. Double blue.

C. medium flore-pleno lilacina. Double lilac.

C. medium flore-pleno alba. Double white.

These double Canterbury Bells are very handsome, and nine-tenths of them come true from seed.

Cheiranthus cheiri flore-pleno. Double German Wallflower.

The double German Wallflowers are very extraordinary, many come full double, and the colours are very numerous—from nearly white to dark brown.

Dianthus Chinensis Heddewigii (Heddewig's Indian Pink). A splendid new variety, with crimson and parti-coloured flowers. Sow in spring for flowering the same year, and in September to bloom the following year. This will be a universal favourite.

D. Chinensis laciniatus (Fringed Indian Pink). Introduced by M. Heddewig at the same time as the preceding variety from Japan. The flowers are four inches across each petal, consisting of a long delicate fringe; some are double, and others single. The colours are as various as the rainbow. The plant grows two feet high, and is equally suitable for greenhouse decoration and for out door cultivation. These two fine varieties may be propagated by layers and cuttings, as well as by seeds.

Digitalis gloxinioides (Gloxinia-like Foxglove). A handsome variety, with varied colours and spots of our beautiful common Foxglove. Well worthy of general cultivation.

Mathiola incana imperiale. A somewhat new biennial Stock, of divers colours, with a variety that produces flowers of a crimson colour. To keep these certainly through the winter it is advisable to pot a large portion, and put them in a dry pit, giving plenty of air in favourable weather. The grand enemies of all biennial Stocks are a damp air and a wet soil. In favourable winters and in dry soils they live through the winter tolerably well in open beds; but they are always uncertain so treated.

Œnothera biennis hirsutissima (Hairest Evening Primrose). A new variety from California, with large crimson-orange coloured flowers, growing two feet high, and quite as easy to cultivate as the species.

Scabiosa atro-purpurea *var.* nana nova (New dwarf Widow Wail). Flowers divers colours.

S. coccinea nova (New scarlet-flowered).

S. eximia (Showy Scabious). German; many colours.

I sowed my Scabious seed last year in July, but though so late they all ran to flower: therefore, this year I shall sow them in September.

Antirrhinums, Hollyhocks, and Pansies are generally treated

as biennials; but as the varieties, if superior, are now considered florists' flowers, I shall defer them till I treat of them in that class. Sweet Williams, I think, may be fairly classed as hardy perennials.—T. Appleby.

LANTANAS.

In consequence of a recent promise, I will now shortly allude to this pretty, but generally rather too strong-scented family of plants. The most of them are hard-wooded, and, originally, natives of warm and tropical localities. Some of the most prized sorts are garden or florists' varieties, and some of these are hardier and more fitted for flower-garden purposes than the older kinds. All of them are very accommodating in their habits, so that they may be had in bloom nearly the whole year round, if kept in a warm greenhouse, or in a cool plant-stove. They will be kept safely in a common cool greenhouse all the winter; but in such a position they will become deciduous instead of evergreen; and in warm localities they will bloom out of doors in summer, either in single plants or in beds, similar to Verbenas. The flowers of most of them are changeable, the colour changing considerably as the truss approaches maturity and begins to fade, so that a multitude of shades of colour will be found upon the same plant. The blooms are produced continuously upon the young shoots of the current year, so that every inch of growth will present you with several fresh flower-buds. Belonging to the Verbena group, plants or beds of Lantanas have a great resemblance to Verbenas, only the leaves are generally larger, and the stems hard-wooded and stronger growing. Verbenas will attain a large size if cultivated for that purpose. I recollect having large balloon plants of a pink kind called *incisa*, four feet in diameter and six feet in height, and a mass of flowers all over. This, however, required more care than a shrubby Lantana, of such kinds as *crocea superba*, *aculeata*, *mutabilis*, &c.

Estimate of Sorts.—Of older kinds that I have seen, I would select *aculeata*, lilac yellow; *mutabilis*, much the same; *coccinea*, scarlet; *crocea superba*, bright orange; *purpurea*, purple; *cammara*, red orange; *violacea*, violet; and *Sellowiana*, crimson rose. The last forms a very pretty bed, and will do for that purpose when hardly any of the rest will do; but it must be grown in sandy heath soil to thrive. Then it looks a good deal like *Annie Laurie* Verbena, or a go between *Annie* and *Wonderful* Verbena. I cannot say it looks better than either, but it will stand a fair comparison if the heath soil is given to it, and the plants are a fair size when turned out.

I have grown few of the florists' varieties, but the following that I have seen are very pretty:—

Boule de Niege, white with orange centre.
Corymbosa, orange, changing to red.
Grandiflora, deep rose.
Impératrice Eugenie, rose and white.
Lilacia superba, lilac and white.
L'Abbe Trouvre, red and yellow.
Napoléon III., purple and yellow.
Wilhelm Schule, rose and orange.
Surpasse Ann Trouvre, sulphur and pink.

These I have culled from a note book, as they came before me at various places, in pots. I believe that most of the sorts and many more can be had from nurserymen, at from 9*d.* to 1*s.* 6*d.* per plant, and seeds of most of the sorts can be obtained from most of the seedsmen that advertise in these columns, for about 6*d.* per packet.

Propagation by Seeds.—Unless these were sown on the first day of the year, and in a nice hotbed, I should have little hope of the plants doing great things in the way of blooming that year, either in-doors or out of doors. Sown now, the young plants might bloom a little in-doors at the end of autumn; but I believe that those who sow in April, or even in March, expecting to get flower-beds from them the ensuing summer, will be disappointed. A sweet hotbed even now will be very desirable for getting up the seeds nicely. Sow in loam and peat, and cover with a square of glass, and shade until the seedlings break ground. Then give light, and what water is necessary, and, ere long, a little air as the plants can bear it. As soon as handable place three or four plants round the sides of a four-inch pot, and place them again in the hotbed, and when well rooted shift them singly. When full of roots, shift again into six-inch pots, and when growing the plants may be placed out of doors in autumn, if the flowering is no great object. Stopping should also have been resorted to several times to make them bushy. If flowering is an object, in-doors, late in autumn and the beginning of winter, it would be as well to transfer the plants after the last shifting to a cold pit with glass sashes, instead of setting them out of doors. These will make fine plants for blooming next year.

By Cuttings.—Supposing such plants as the above, or, better still, older plants, to be started into growth in a temperature of from 50° to 60° at the beginning of March, they will have made side-shoots from two to three inches long by the first week of April. These clipped off close to the older stem, with what is termed the heel at the base left, and a couple or so of the lower leaves removed, and inserted in sand above sandy loam and peat, and placed in a sweet hotbed, with a bottom heat of 70° to 75°, and a top temperature of 55° to 65°, will root and be fit to be potted in three-inch pots in a month. Such plants will make neat flowering plants for in-doors in the autumn and even the winter; and so far as out-door work is concerned, will be far preferable to seedlings of the same year. For planting out of doors the next season there will not be so much difference; though it is most likely that the plants from cuttings will be the most matured as to their wood, and, therefore, bloom the most freely.

Soil.—In potting all these plants, I should use light sandy peat and loam at first, give loam and peat at the second shifting, and grow ultimately in nothing but rather stiff fibry loam. In the flower garden, any soil of a loamy character will, therefore, suit them well. Here, however, I must make an exception in the case of the pretty dwarf *Sellowiana*. It never succeeds thoroughly unless in rich heath soil, or what we generally but improperly call peat. This heath soil will be all the better if enriched with a sixth of very old dried cowdung, and lightened with a little silver sand. Not but that you may have a passable bed of it in loam; but I never pleased myself with it unless when it was grown in peat. In fact, this led to my giving it up as I have no peat or heath soil near to this place.

Generalities.—I have never found the plants liable to any insects, except, perhaps, a few of them that the green fly would nibble at when they were not getting exactly what they liked. When plants are established, they all flourish well during summer in greenhouses—say, from May to the end of October. To bloom on nicely in winter, they require a temperature seldom below 50°, and a good rise allowed for sunshine. When spring comes, these plants may either be grown on so as to bloom all the summer, or they may be set fully in the sun and little water given for a month, and then the shoots stumped back to two or three buds. If these plants were set in a shady place before they break, and when the shoots are an inch long are fresh potted, getting rid of most of the old soil, and substituting fresh fibry loam, these plants will form dense shrubs for autumn and winter blooming. If the object be to have bloom in greenhouses in summer, then at the end of October, the flowering-shoots should be shortened, the plants allowed to get dry, and the plants then set beneath the stage, or in any unattractive place where the temperature will be seldom lower than from 40° to 45°. Here, all the leaves will generally fall in winter. About February, it will be advisable to prune the plant still more back, leaving a bud or two, or more, at the base of each shoot. You will manage this all the more, from recollecting that these buds will yield the summer flowering-shoots. About March, the plants should be exposed to the light, and in fine days have their stems syringed to encourage the buds to break freely. When the young shoots are an inch long, repot the plants as above, and keep growing under glass, and the plants will be dense, compact, and covered with blossom during the summer.

For Bedding.—It will be seen above, that I have not much faith in young plants of the present season's growth. Even in the case of *Sellowiana*, I should like the cuttings to have been taken off as early as midsummer of the previous year. Plants of that kind treated as above, and turned out at the end of May in a free-growing state, will generally do well. I should prefer all other kinds not to be so forward when planted out. Perhaps, south of London, this may not much signify, or in warm sheltered places north of it. I have frequently tried several kinds and scarcely ever succeeded to my expectations, the winds with their unbroken sweep were too much for them. The forwarder the plants were, the worse they suffered. I always succeeded best with plants rested and kept dryish, as above mentioned, in winter, the leaves allowed to fall off, the points of the shoots merely removed; and as soon as the buds in these shoots began to break in March, they were then placed in a cool, airy, somewhat shady place until May, giving them a week's full exposure to sun before planting them out, and tying or pegging down the shoots of last

year. By this means, as soon as the ground became heated in June, the young shoots grew freely and flowered abundantly, and were much less liable to feel the changes of the weather than plants that were forwarder when planted. This is how I should do were I to group them in beds again. If any other friend can give a better plan to "Rose," I shall be obliged, as I may try the hardier kinds again for bedding. Let the advice, however, be for cold and exposed places, as well as sheltered and warm ones. For the former places, I find that many things do best for beds if not grown as tender before they are planted out.

R. Fish.

CULTURE OF HELIOTROPES—COVER FOR FRAMES.

Seeing a notice to a correspondent at page 44 of the last October part of The Cottage Gardener, I think I must be one of the few that know how to take up Heliotropes with success, not often losing any when treated as follows:—

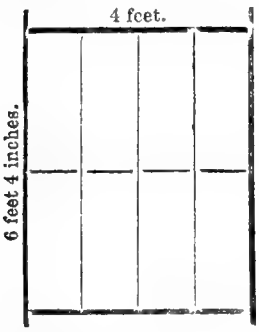
I have above a dozen plants aged from three to ten years; they are now in eight-inch pots. I take them up on the appearance of frost, prune the tops and roots close off to where they have been cut before, and then pot them: the younger ones two or three in a pot, but for the old ones there is room for only one, as they are six or eight inches across the stump where the tops have been cut off.

Each plant will cover a space of three or four feet in diameter during summer. I think they are far better and less trouble to keep through winter, and bloom better than young plants.

Any weak plants that may be left after the bedding season, are kept in pots all summer, and lay a foundation for future lifting, being plunged in a border, or placed on the north side of a wall or fence. By being pruned close in some time in September they will make good plants for bedding the following season; and when taken up are pruned off, the tops and roots, to the size of the pot they were grown in the summer previously, and so on as long as you like to keep them from frost.

The Heliotrope is a good plant for the back wall of a greenhouse. I have a plant so trained thirteen feet high and four feet wide; it blooms ten out of the twelve months in the year, and would the other two months, only I cut it back in October, as it prevents a free circulation of air for the Grapes, so much needed by them during the foggy months.

In February, last year, I made five covers for Cucumber-frames, and liking them so well I made five more a fortnight since for Melon-frames, where I keep bedding plants as long as they want shelter. They are made thus:—Two side pieces 1½-inch by 1¼-inch of foreign deal, with top and bottom pieces the same size; three splines 2 inches wide by ¾-inch thick, at equal distances, all cut and let into each other, so that they are level on the top side, or as nearly level as such a carpenter as I am can make them. I then put one piece 2 inches by ¾-inch thick across the middle on the under side of the other splines; nailing them all securely together.



The annexed presents something like the frames before they are covered. The covering is cut off a condemned tarpaulin from the railway company, which is to be bought cheap. Nail the covering on tight with ¾-inch nails having broad heads, and then you have a covering that will keep out more frost than any two mats you can get.—H. Wright, *Gardener, Herringswell, Suffolk.*

PLANTING A CIRCULAR BED.

I propose planting a circular bed, ten feet in diameter, with Variegated Mint and *Verbena venosa*, half and half, and edged with *Lobelia erinus ramosoides*. Will you inform me if my arrangement is right and will look well?—R. A.

[Your "arrangement is right and will look well," and even capitally, provided you bestow the necessary pains in pinching and training the two together. If you do not, you will have the best variegated mess in the three kingdoms. Plant them both thick enough for the bed—that is, so thick that one of them would do, and this will give you room to thin out just to the exact degree. Fourteen years come next summer, *venosa* was chanced crossed in our beds by one of the bluish-grey Verbenas, and the seedlings had upright spikes like *venosa*, and a creeping underground habit; but the colour was frightfully ugly. We never since had an opportunity of planting a tuft of *venosa* in the centre of a *Defiance*, or any other Verbena; but we think there is little doubt about getting such crosses, and we always considered *venosa* the best-habited Verbena. The new lilac mauve Verbena, called *Lady Middleton*, with the purple of *venosa* crossed, would make a man's fortune out of one small bed.]

THE PAST SEASON, AND THE PROSPECTS OF THE PRESENT.

It is of little import to how great an age a gardener may live, or however closely he may observe the freaks of Nature in the ever varying phases of the seasons; the extraordinary fluctuations of temperature, the long continuance of frosty, dry, or unseasonably wet weather, are enigmas which he cannot solve, and must ever remain so. They are, in fact, notwithstanding what is called the advancement of meteorological science, beyond our attainment, and must ever remain subject only to the dispensations of an all-wise and inscrutable Providence.

We know not upon what data the one fortunate prediction of Mr. Murphy was founded; but must allow that it was, at least, a fortunate guess. Nor can we say more of the astrological lore and predictions of Mr. Moore, the eminent almanack maker, who, notwithstanding his "more or less," "on or about," "may be expected," &c., is as often wrong as right.

From whomsoever, or whatever source, they may proceed, I do think that all attempts to foretell the state of the weather are great presumptions on the part of man, and we need but to look on such attempts to see their vanity and futility; and yet how many persons there are who pin their faith upon "Moore's Almanack," and notwithstanding its yesterday's fallacy, rely that to-morrow will be as he says. But we may be edified in considering what the past weather has been, and remarking its effects upon the necessary articles of human consumption.

We found ourselves in the winter of 1858—59 unusually short of water. The average quantity of rain which fell for a year or two previously having been so small as materially to affect the springs, and obliging the inhabitants of the chalk districts, in some cases, to go six miles for water for household purposes. This position of things was succeeded last year by a very dry and warm summer, which made the supplies of this supporter of life still shorter, and the late autumnal prospect was a truly melancholy one. Here we set to and deepened all our wells; thus securing a never-failing supply, sinking through the iron sand down to the Kimiridge clay, which was done with most satisfactory results. For some time after this state of things had occurred, the rains which fell seemed to have little or no influence, such was the extreme state of dryness and porosity of the soil; but happily for us a rainy season has since arrived, and we may say that our springs are fully replenished now.

In many parts of the country the autumn-sown corn crops have been much injured by the early and now long-protracted winter. Under its influence the Wheat plant has been so injured that the fields on which it is growing look like fallows; and if a good crop is produced it must come from the tillering whenever the weather may stimulate the plant. Owing to the failure of the Turnip crop, and the destruction of the Mangolds by frost, and also to the backward state of the grass, farmers have much difficulty in providing food for the mouths they have to supply, and will have the same struggle till warmer weather ensues. But the whole surface of the arable land is in fine, mellow, working order. We have, therefore, some advantages to balance the chapter of accidents enumerated.

Let us now consider the effects of the late and present season upon gardening and gardeners.

The summer of 1859 was, as above observed, a very dry one, and was particularly marked by a failure in the crop of Potatoes. The long-continued drought made the tubers small, and the prevalence of dire disease blasted the fair hopes of many growers of this crop. In many places they were not worth the expense of lifting. Broccoli in the autumn looked most promisingly, and so, indeed, did all the class of winter vegetables; but the severe and unusually early frosts of October nearly annihilated the whole of the crops of the kitchen garden. Broccoli, all sorts of winter greens, young Cabbages, Celery, and Parsley, all vanished, as well as Lettuces, from their quarters; and those who have

not availed themselves of temporary protections for their plants, must pine in vain for them.

I may be excused for mentioning here, that I have for the last few years potted my Lettuces in 60-sized pots, and placed them on the front of a very late Peach-house, just keeping the temperature to about 35°, and giving abundance of ventilation to them, and have by this simple means succeeded in saving a fine stock of plants, which are just put out in the open ground, while all around me there is no such thing as a plant alive. This simple expedient may be called very troublesome, but I think it worth while for those who, like myself, have the convenience.

Besides the perfect destruction in the vegetable garden which I have noticed, I find that much injury is inflicted upon shrubs and flowering plants. I had several magnificent specimens of Pampas Grass, all of which seem to be dead, as there is not a partially green leaf left on them. The Exmouth Magnolias are most sadly bronzed. *Erica Mediterranea* and *arborea*, are killed down to the ground. A very fine plant of *Taxodium distichum sempervirens* appears as if roasted up, and a great many other plants appear partially injured, and will show more the effects of the frost as dry, warm days come on in the spring.

We have found the vegetable garden to be a mass of rubbish only. Turn we now to the fruit garden—the pride and boast of many an indefatigable gardener and most painstaking amateur. Here we must confess our prospects to be much brighter. The wood of the trees was thoroughly indurated by the hot suns of last summer, and the buds look plump and promising. This is an unusually late spring; and it is but fair argument to suppose, that after the endurance of so much rigorous weather, the mantle of spring may descend unpierced by those frosts which of late years we have so seldom escaped. But we have the trying month of April to pass through, and a most trying period it is to the gardener. Let him be fully prepared at all times for the worst, and apply in principle all he has learned in theory of protection. Let him do this; and should he succeed with his crops, he will receive the approbation of his employer, and have comfort to himself in the reflection that he has left "no stone unturned" which he could possibly move, and his crop of fruit is the result of his own unwearied exertions.

It is not wished or intended by these remarks in any way to damp the ardour of those who feel an interest in keeping records of the temperature, the workings of the barometer, or rain gage. All these phenomena are fair and useful objects of record, interesting in after years, and bringing home to our recollections the changes of days long since past. But it is contended that such data are insufficient for man to foretell the exact state of the weather at any particular time or place. Some general deductions may be arrived at by a close study of those observations, but they are such as loose observers only would arrive at, and will not satisfy the man of science whose conclusions to be valued must be formed and shaped by more certain rules.

Henry Bailey, *Nuneham.*

HARDY FLOWERING HERBACEOUS PLANTS.

(*Continued from page* 339, *Vol. XXIII.*)

BUPTHALMUM—Ox-eye.

Nat. ord., Asteraceæ. *Linn.* Syngenesia superflua.

Generic Character.—*Involucre* imbricated, leafy. *Receptacle* chaffy. *Seeds* margined, apex toothed. *Pappus* an obsolete rim.

Bupthalmum grandiflorum (large-flowered). *Leaves* alternate, lanceolate, slightly toothed, smooth; *involucre* naked. 1½ ft. Yellow. August. Austria.

B. salicifolium (Willow-leaved). *Leaves* alternate, oblong-lanceolate, slightly toothed, three-nerved, villous; *involucre* naked. 1½ ft. Yellow. September. Austria.

B. speciosissimum (showiest). *Leaves* alternate, ovate, stem-clasping, naked, toothed, slightly ciliated; *stem* one-flowered. 2 ft. Yellow. July. S. Europe.

The Ox-eye is a genus of very handsome plants, neat in habit, with very pretty heads of yellow flowers. Any good garden soil will grow them well. Easily propagated by dividing the plants either in March or October, replanting them directly in freshened soil.

CACALIA.

Nat. ord., Asteraceæ. *Linn.* Syngenesia æqualis.

Generic Character.—*Involucre* cylindrical, oblong, with accessory scales at the base. *Receptacle* naked. *Pappus* pilose, scabrous.

Cacalia alpina (alpine). *Leaves* stalked, heart-shaped, toothed, glabrous, *petioles* naked; *corymbs* fastigiate; *involucres* usually five-flowered. 2 ft. Purple. July. Austria.

C. cordifolia (heart-leaved). 1 ft. White. August. Mexico. Tuberous-rooted.

C. hastata (halbert-leaved). *Leaves* stalked, three-lobed, hastate, toothed; *flowers* in nodding racemes. 1 ft. White. September. Siberia.

C. reniformis (kidney-formed). *Leaves* stalked; radical ones cordate-reniform, repand, toothed; stem ones oblong, toothed, wedge-shaped at base, entire; *corymbs* fastigiate. 1½ ft. White. July. N. America.

C. suaveolens (sweet-scented). *Leaves* stalked, hastate-sagittate, toothed; *petioles* dilated at the top; *corymbs* erect. 6 ft. White. August. N. America. Tuberous-rooted.

C. tuberosa (tuberous). 1 ft. August. N. America. Tuberous-rooted.

This is a curious genus of a succulent habit, requiring the same kind of compost as Sedums and other kindred genera—viz., sandy loam, fibry peat, lime rubbish, and some caky pieces of old cowdung mixed through the whole.

Propagated by dividing the plants and the tubers in March into moderate-sized divisions, carefully preserving the roots to each plant, replanting immediately in the above compost where they are to bloom.

CALAMINTHA—Calamint.

Nat. ord., Labiatæ. *Linn.* Didynamia Angiospermia.

Generic Character.—*Calyx* after-flowering closed by hairs. *Corolla* orifice inflated; upper lip emarginate, lower lip three-parted, with intermediate segment entire, sub-emarginate, or crenulate.

Calamintha alba (white beautiful Mint). 9 in. White. July. Hungary.

C. Caroliniana (Carolina). *Leaves* rhomboidal-oval, obsoletely toothed upwards; *whorls* rather stalked, flowers about ten, shorter than leaf. 1 ft. Flame-coloured. June. Carolina.

C. grandiflora (large-flowered). *Leaves* ovate, acute, finely toothed; *peduncles* axillary, three to four flowered; *bracts* lanceolate, sessile. 1 ft. Red. July. Italy.

C. ——— variegata (striped-leaved). 1 ft. Red. July. Gardens.

C. marifolia (Marum-leaved). *Leaves* ovate, rather toothed, glaucous; *peduncles* axillary, dichotomous; *calyx* segments equal. 1½ ft. Purple. June. Spain.

Calamintha means beautiful Mint, and very beautiful the species are of this small tribe. I am surprised they are not more generally known and cultivated, especially as they require no particular soil, are very hardy and easily propagated.

Increased by young suckers like Mint, and divisions of such as do not throw up suckers. Take up the suckers as soon as they have three or four leaves and roots to each, and during showery weather plant them in patches of threes, in rich soil where they are to bloom, which they will do the same year. Others may be increased by taking up the plants in March, dividing them and replanting immediately in the flower-border. The plants will grow and bloom stronger, if a dressing of dung be added every spring.—T. Appleby.

(*To be continued.*)

ORCHARD-HOUSES.

I scarcely ever remember to have derived more pleasure from my orchard-house than this spring. The weather here in the south was windy, cold, and cloudy, without frost throughout the month of January; but my house was always dry and calm, and half an hour's sunshine sent up the temperature to 55° and 60°. February gave us plenty of frosty days, but rarely a day without gleams of sunshine, creating at once in my house that most agreeable temperature as given above—the air so dry and calm as to be worth something a mouthful to breathe.

About a fortnight ago my Apricots came into bloom; they have been most beautiful, and are now setting their fruit thick "as leaves in Vallambrosa." The trees were pinched in to three leaves all last summer, after instructions received from our orchard-house master, and top-dressed in October. I am delighted with them, and with that pruning-made-easy system of summer pinching.

The temperature of my house for the three weeks in March just passed has been quite perfect, in sunny days going up to 65° and 70°; the air dry, calm, pure, and sweet, for I have not had anything added to the top dressing given in October; and as the earth in the pots, from being so excessively dry all winter, rapidly absorbs the small quantity of water the trees at present require, I have not felt any moisture in the air, so as to make it, like the air of a conservatory, unwholesome to breathe.

My Peach trees to-day (March 24), are now fast bursting into bloom. They are all bushes and perfect beauties, having been under the three-leaf system of pinching all last summer. How doubtful I felt about this pinching towards the end of June! for the rapid growth of the young shoots seemed magical, and every day my finger and thumb had full employment. I thought I should get bundles of unripe shoots, and that my trees would be a mass of green leaves and green shoots without blossom-buds. July made me more hopeful, and I had faith in my teacher, which, by the way, I felt while I was pinching in June; but the firmest faith will occasionally waver, as we all know.

August came, and I was still pinching. My fruit, from not being shaded by long luxuriant shoots, began to ripen of a fine deep crimson; and by the end of the month I saw that my pinched shoots would also ripen well to my great comfort.

April 1st.—My Peach and Nectarine trees are now in full bloom. One would scarcely imagine that so much variety could be found in their flowers: Some with small petals nearly crimson; some with them very large of the true Peach-blossom colour; others with petals so small as scarcely to be distinguished, the flowers being a mass of stamens crowned with their anthers covered with "gold dust." In the orchard-house these variations in the blossoms of the Peach and Nectarine are of the highest interest; and they seem so novel, for against walls they are scarcely seen if the weather be even warm enough to allow of a close inspection.

My house is span-roofed, with glass on each side, and fourteen feet in width. Two rows of trees are on each side of the central path, forming an avenue to me full of interest, and which will continue till the last Peach is gathered in October.

I have only seen one bee in my house this season, and have seen scarcely any on my Crocuses and Scillas, owing, I suppose, to the unusually cold stormy weather. They are so useful and interesting in the orchard-house at this season, that I have sent to a neighbour to borrow a hive for a few weeks to be placed near mine.

Perhaps it is worth while to add, that in the spring of 1858 I planted in my house two pyramidal Peach trees one on each side of the doorway. I pinched in their shoots during that summer, took them up in October, and replanted them with a shovelful of compost in the same places, and had some fine fruit from them in 1859; although I must add that nearly all the young fruit on them was killed by that severe frost of the 1st of April. I pinched them in as directed, and took them up, and replanted them in October last. They are now two fine trees, full of blossoms, and stand like two beautiful sentinels at the entrance of my orchard-house.—A.

GISHURST COMPOUND.

I wish your correspondent "W. W. C. G.," who doubts whether Gishurst Compound may not have injured his Apricot-buds, could see my dwarf trees as they now are—Peaches and Nectarines covered with strong blossom, Plums and Pears covered with buds, and Apricots with the fruit setting. The white appearance on many of the stems shows how strong an application of Gishurst they had when at rest. I do not know whether your correspondent is, like myself, unlearned in fruit growing. I have more than once found both small and large branches of Apricot trees die, quite irrespectively of any washings with Gishurst. I always laid the blame to incorrect potting or pruning, or other consequence of my ignorance.

The notably healthy, clean, and vigorous appearance of my trees this season makes me believe, that, for trees under glass (and, therefore, not exposed to washing from rain), a thorough washing of the stems and branches when at rest with a solution of Gishurst, much stronger than proper when leaves or flowers are out—say ½ lb. to the gallon of water—will (without any making into a composition of lime, sulphur, or other ingredients) effectually destroy insect life and eggs. To one little Vine, which last year seemed hopelessly mildewed, I applied a composition made according to that high authority, Mr. Errington's recipe, only substituting Gishurst Compound for soft soap; and a relation's gardener, at my suggestion, coated all his Vines with this composition; his buds look perfectly healthy.

The most active ingredient in Gishurst is sulphur in a much more penetrating state than it can be applied in either powder or *mixed* with soap, or other ingredients. I do not think lime mixed with it could have any tendency to develope any injurious property.—George Wilson.

THE SCIENCE OF GARDENING.

(*Continued from page* 400, *Vol. XXIII.*)

Whatever promotes an over-luxuriant production of leaf-buds proportionately diminishes the production of flower-buds, and the reason is obvious. A luxuriant foliage is ever attendant upon an over-abundant supply of moist nourishment to the roots, the consequent amount of sap generated is large, requiring a proportionately increased surface of leaf for its elaboration, and for the transpiration of the superfluous moisture; and as the bud becomes a branch or a root accordingly as circumstances require, so does it produce, as may be necessary for the plant's health, either leaves or flowers. This is ascertained by the universal fact that a tree or shrub, if headed down, throws out leaf-producing buds only, but never flower-buds; the former are required for the plant's existence, but the latter are only needful for the propagation of its species. A cloud of other testimonies might be produced, showing the alteration of vegetable form to accommodate the individual to altered circumstances. Place some aquatic plants in a running stream, the Water Cress, for instance, and its submerged leaves will be very small, thus giving the stream less power to force them from their rooted hold; but plant them in still water, and the leaves are uniform in size. Mountain plants have, for a similar reason, the smallest foliage near their summits, thus giving less hold to the boisterous winds which sweep over them. Nor is this contrary to reason, as some persons would have us believe; for the petals, and even the minutest parts of every flower, are only different forms of the same alburnum, parenchyma, and bark, which take another shape in the leaf. And it is only one other instance of that power of adaptation to circumstances so wisely given by God to all organised beings, which makes the wool of the sheep become scanty hair in tropical temperatures, and the brown fur of our hare become white amid the snows of the arctic regions. In the case of plants, it is familiar to every gardener; and he knows, that by differing modes of treatment, he can make, according to his pleasure, his plants produce an exuberance of leaves or of flowers, and a well-known instance is the *Solandra grandiflora*. This native of Jamaica had for many years been cultivated in our hot-houses, had been propagated by cuttings, and each plant put forth annually shoots of surpassing luxuriance; but no flower had ever been produced. Accidentally one plant was left for a season in the dry stove at Kew, and this plant had only a moderately luxuriant foliage, but a flower was produced at the extremity of every shoot. It now blooms every season in our stoves, a drier and less fertilising course of treatment being adopted.

The circumstances of soil and climate and cultivation effect changes in plants sufficiently permanent to render it very difficult to define the difference between a variety and a species. These changes are not produced in one member of a plant, but in all. A root not remarkably fibrous when growing in the earth, becomes in water so multitudinously fibrous as to be called "a Fox-tail Root." In the water nourishment is more diffused than in soil, and the root-surface for its absorption requires to be proportionately enlarged.

The *Phleum pratense*, or Meadow Cat's-tail, and *Alopecurus geniculatus*, or Kneed Fox-tail Grasses, delight in moist-soiled localities, and in these their roots are always fibrous; but when grown in a dry soil they as uniformly become bulbous-rooted. Bulbous-roots are adapted to endure excessive droughts, being reservoirs of moisture.

In the alpine plants, Burnet, Saxifrage, Coriander, and Anise, the lower leaves are entire, whilst the upper leaves are divided, thus offering a less hold for the winds which sweep over them. In some aquatic plants, especially *Ranunculus aquatilis*, the lower immersed leaves are capillary, offering little surface to the stream, whilst the upper leaves are flat and circular, being the form best suited for floating on its surface. What is still more remarkable, as is observed by MM. De Candolle and Sprengel, the blossoms

of *Juncus subverticillatus* when it remains as *Juncus fluitans* constantly under water are transformed into long stem-leaves.

Then, again, as remarked by Mr. Keith, some plants which are annuals in a cold climate, such as Sweden, become perennials in a hot climate, like that of the West Indies. This has been exemplified in *Tropæolum* and *Malva arborica*. On the other hand, some plants which are perennials in hot climates, are reduced to annuals when transplanted into a cold region, examples being offered in Mignonette, *Mirabilis* and *Ricinus*.

All these results, and many more which might be quoted, are no more than illustrations of that power so often bestowed upon vegetables and animals to adapt themselves to circumstances. That power is always for the purpose of preserving the health, or safety, or propagation, of the individual on which it is bestowed; but it effects changes of form and development which increase the difficulty of distinguishing species from varieties.

Those who ridicule the idea of the leaf, the flower, and the fruit being only different developments of the same parts, which take different forms as the necessities of the plant render them desirable, surely forget that the leaf naturally takes such varying shapes, as in many instances to have more the appearance of fruit than of that usually assumed by foliage. Of this number are many of our fleshy-leaved plants; and the tubular vessel at the extremity of the leaf of the *Nepenthes distillatoria*. In the calyx of the Strawberry Spinach (*Blitum*), and in that of the Mulberry, the transformation is still more complete; for here it actually changes colour when the flowering is over, becoming the edible part of the fruit, and enclosing the seed like a genuine berry.

The difference of colour usually existing between leaves and petals is a very unsubstantial distinction. Many flowers are altogether green; many leaves are brilliantly coloured, as those of Melampyrum, Amaranthus, Begonia, &c. Then, again, green leaves become yellow, red, and brown, in autumn; and M. Macaire has shown, that the chromule, or colouring matter of leaves and flowers is identical, being only more oxygenised in the latter; and we incline to the opinion that the variegated colour in leaves also arises chiefly from those coloured parts being more highly oxygenised.

There are circumstances—there are certain degrees of nourishment, of heat, and of light, though our knowledge is too limited to assign them with arithmetical precision, which have a tendency to promote the development of some vegetable organs rather than others. Accordingly, as those circumstances prevail, we find the pistils increased in number at the expense of the stamens, as was observed by Mr. Brown in the case of the Wallflower, and in the *Magnolia fuscata*; and by M. Rœper, in the *Campanula rapunculoides*; or the pistils changed into stamens, as was noticed by the same botanist in *Euphorbia palustris* and *Gentiana campestris*; so the petals have been observed converted to calyx in the *Ranunculus abortivus*, and the calyx into petals in *Primula calycanthema*; petals changed to stamens in the Black Currant, and in *Capsella bursa pastoris*; and stamens as well as pistils to petals in double flowers. But all those parts of a flower have been observed changed into leaves. Nor is this matter of surprise, for these are the organs most necessary for the well-being of a plant; and when the production of blossom fails, it is only because more foliage is required for the elaboration of a superabundant sap. Illustrations of these changes of the floral organs into leaves have been observed by M. De Candolle, and others, in a variety of the Gilliflower (*Hesperus Matronalis*), in varieties of the Anemone, Ranunculus, and Fraxinella (*Dictamnus albus*); in *Ranunculus philonotis*; *Campanula rapunculoides*, *Anemone nemorosa*, *Erysimum officinale*, and *Scabiosa columbaria*.—J.

(*To be continued.*)

MEETING of the ENTOMOLOGICAL SOCIETY.

The March meeting of the Entomological Society was held on the 5th ult. J. W. Douglas, Esq., the President, being in the chair. Amongst the donations received since the last Meeting were the publications of the Royal Agricultural Society, the Society of Bengal, the Linnæan Society, and Society of Arts; also the Memoirs of the Société de Physique et d'Histoire Naturelle de Genève, the "Zeitung" of the Entomological Society of Stettin, and the first part of a Memoir upon the Diptera of Mexico, by Signor Bellardi.

Mr. Samuel Stevens exhibited a box of exotic Beetles, being a portion of the recent collections of Mr. Wallace at Batchian, a small island near Borneo. Many of the species were of great beauty, and one-third of them at least were new to science.

Mr. Ianson exhibited various rare species of Beetles collected by Mr. Turner at Rannock, in Perthshire, including *Pytho depressus*, *Xyloterus domesticus*, *Bradycellus placidus*, *Leptusa fumida*, &c.

Mr. Dunning exhibited a specimen of the rare Moth, *Mamestra anceps*, taken in the isle of Portland in the autumn. He also read a letter from the possessor of the specimen of *Sphinx Pinastri* exhibited at the last meeting of the Society, and in which he affirmed that he had taken it himself flying among Fir trees at Romsey, Hants, in the month of June last. A letter was also read from his brother, who asserted that the specimen in question was not among the insects which he had captured for his brother in Switzerland.

A discussion took place on the best method of labelling specimens, so as to preserve a record of the places and times of capture, notices of habits, &c., in connection with the individuals themselves.

Dr. Wallace mentioned the capture, by Mr. Grimstead, of a specimen of the very rare *Acosmetia caliginosa* in a wood near Ryde, in the Isle of Wight; the New Forest being the only locality for the species previously known to naturalists.

A letter was read from Mr. George Wailes on the discovery of female specimens of the common Wasp (*Vespa vulgaris*), in a torpid state under pieces of slate on the summit of Skiddaw, from the end of June to the end of August. It was suggested either that these females had completed their work in the nest of the year and had then gone away to die in such a situation, or that, having in the previous autumn taken up their winter quarters under these stones, they had not been revived by the sun of the following summer. It was also stated that Mr. Wollaston had found the Wasps in the same situation in the month of September.

The first portion of an extended work, entitled "Contributions to an Insect Fauna of the Amazon Valley," by Mr. Bates, was read. This Memoir is the result of eleven years' residence in that part of the world, and contained a very careful description of the geographical and geological peculiarities of the Valley in question, which was dividible into three great districts—namely, the Upper Amazons, the Lower Amazons, and Para. The Memoir contained also an account of the various species of the restricted genus Papilio which Mr. Bates had met with, and which will materially add to our knowledge of that interesting group; as the opposite sexes of many of the species have been described as distinct by different lepidopterists, it being quite impossible, except by a knowledge of the species on the spot where they reside, to decide with any certainty as to the specific relationship of many of these so-called species from the great differences existing between the two sexes. Some very brilliant new species were also described by Mr. Bates.

THE CANARY AND THE BRITISH FINCHES.

(*Continued from page* 368, *Vol. XXIII.*)

Second Division.—FINCHES.

1.—THE CITRIL FINCH (*Fringilla citrinella*).

French, Le Venturon de Provence. *German*, De Zitronenfink.

The Citril Finch, or, as it is sometimes called, the Italian Canary, although not a native of this country, yet from its being very closely allied to the Canary, and as it breeds very freely with that bird, so it has been supposed by some writers to have much to do with the origin of some of the continental varieties of Canaries, that I think a description of it will be acceptable; but as I am not myself acquainted with this variety of Finch, I shall translate the following account of it from Dr. J. M. Bechstein's "Natural History of the Birds of Germany" (Vol. II., page 241):

"The Citron Siskin, or, as it is commonly called, the Citron Finch, is a native of the southern countries of Europe, the whole of Italy, Greece, Turkey, Provence, Languedoc, Catalonia; also, in Austria, and Aleppo; is found on the Alps, in Switzerland, and Tyrol, and, probably, in all parts of a similar temperature. It has also been noticed in France and Voigtland.

"In form and colour closely resembling the Canary, except that it is rather slighter. It measures 5¼ inches in length, the tail 2¼ inches, and the wings stretch nearly 8 inches wide. The beak is, towards the point and sides, rather compressed, pointed, and the under mandible slightly drawn in, above brownish, below

lighter, and 5½ lines long. The nostrils are small, round, and covered with forward-laying feathers. The irides brown,—the feet light flesh colour; the claws blackish; the shanks 8 lines high, the middle toe 7 and the hinder 6 lines long. The plumage is, on the whole, greenish yellow, ash grey, and dark brown, resembling the cock Greenfinch, but lighter. Forehead, back, and rump, yellowish green; the yellowish green of the forehead passes into grey at the back of the head. The back of the head, nape, and sides of the neck, as far as the throat, are light ashen-grey; the face, chin, throat, breast, and belly, a beautiful greenish yellow; the small wing-coverts greenish yellow; the larger wing-coverts dark brown, with broad yellowish-green borders; the quill-feathers dark brown or brown black, the primaries having a narrow light yellow, and the secondaries a broad yellowish-green edge; the slightly forked tail blackish brown, the feathers having a narrow greenish-yellow margin on the narrow vanes, and a broader whitish one on the broader vanes.

"The female is less bright in plumage; the yellow on the fore-part of the head, chin, and the whole of the under parts is paler and duller; the grey colour of the hinder parts of the head and neck reaches round the throat with a few greenish-yellow feathers on the latter. On the back are some olive-brown stripes. Everywhere the yellow-green colour is much dingier than in the male.

"In the central parts of Germany, they frequent those parts of the woods most where seed-bearing trees abound. There they sit at the end of a twig and call 'gue, gue,' and 'tatcha.' Like the Siskin, its song has much resemblance to that of the Canary, only it is not so shrill but more flute-like. It seems to be half-way between that of the Canary and Titlark. The hen sings also, but not so well as the cock. Naturally, the bird is active and shy, and the fowler must approach him stealthily; though, in the cage, he soon becomes tame, confident, and sings continually. So far as man knows of the habitat of these birds, they live in the mountains, and, certainly, the highest, where only the dwarfed firs and pines grow, and the growth of trees ceases.

"It is a bird of passage, which, in autumn, leaves the mountains in flights, and betakes itself to southern parts till spring. It follows by choice the mountainous districts when it migrates, though it then also gets into the plains and loses itself, sometimes in the higher parts of Germany. In the neighbourhood of Nurnberg, according to Dr. Wolf's information, about three individuals were caught in the October flights in nine years.

"Their food consist of the seeds of alpine plants, particularly the seeds of the fir and pine. In confinement they are fed like the Siskin. It has been conjectured that they also feed on insects and their larvæ; but this seems to me against their organisation, and they would then bear more resemblance to certain other Finches than to the Goldfinch and Siskin.

"The Citron Finch builds its nest not only in thick, stunted firs, but also in the forsaken herdsman's huts. The nest is in form of a half ball, and formed of an under layer of moss and liverwort, lined with hair, and which contains from three to five white eggs, speckled with greenish and red.

"They are caught in spring during their migration in flights, by limed twigs; and, like all the varieties of birds, can be enticed by the call-bird at pairing time. The fancier gives a good price for it. In Germany, it pleases him in the aviary, by its pleasing song, its liveliness, and rarity.

"The older ornithologists (as, for instance, Aldrovand), knew this bird better than the moderns, for some of these have confused it with the Serinfinch, and others class it with the Buntings."—B. P. Brent.

(*To be continued.*)

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page* 11.)

PLUMS.

Red Perdrigon (*Perdrigon Rouge*).—Fruit small, roundish-oval. Skin fine deep red, marked with fawn-coloured dots, and thickly covered with pale blue bloom. Stalk an inch long, stout, inserted in a round cavity. Flesh clear yellow, firm, rich, juicy, and sugary, and separating from the stone. Shoots downy.

A dessert plum. Ripe in the middle and end of Sept.

Reina Nova. See *Belle de Septembre.*

Reine Claude. See *Green Gage.*

Reine Claude de Bavay (*Monstrueuese de Bavay*).—Fruit large, roundish, and flattened at both ends. Skin greenish-yellow, mottled and streaked with green, and covered with a delicate white bloom. Stalk half an inch long, inserted in a small cavity. Flesh yellow, tender, melting, and very juicy, with a rich, sugary flavour, and separating from the stone. Shoots smooth.

A first-rate dessert plum of exquisite flavour. Ripe in the end of September and beginning of October.

Reine Claude Grosse. See *Green Gage.*

Reine Claude d'Octobre. See *Late Green Gage.*

Reine Claude Petite. See *Yellow Gage.*

Reine Claude Rouge (*Reine Claude Rouge Van Mons*).—Fruit very large, roundish-oval. Skin reddish-purple, dotted with yellow russet dots, and covered with very thick bluish-white bloom. Stalk thick, about an inch long, inserted in a deep cavity. Flesh tender, juicy, sugary, and deliciously flavoured, and separating from the stone. Shoots downy.

An excellent dessert plum. Ripe in the end of August and beginning of September.

Reine Claude Tardive. See *Late Green Gage.*

Reine Claude Violette. See *Purple Gage.*

Rensselaer Green Gage. See *Green Gage.*

Robe de Sargent. See *d'Agen.*

Roche Corbon. See *Diaprée Rouge.*

Roe's Autumn Gage. See *Autumn Gage.*

Rotherham. See *Winesour.*

Round Damson. See *Damson.*

Royal Dauphine.—Fruit large, oval. Skin pale red on the shaded side, marked with green specks, but darker red next the sun; mottled with darker and lighter shades, and covered with violet bloom. Stalk an inch long, stout. Flesh greenish-yellow, sweet, and subacid, separating from the stone. Shoots smooth.

A culinary plum. Ripe in the beginning of September.

Royal. See *Royale.*

Royal Red. See *Royale.*

Royale (*Royal; Royal Red; Sir Charles Worsley's*).—Fruit rather above medium size, round, narrowing a little towards the stalk, marked with a distinct suture. Skin light purple, strewed with fawn-coloured dots, and covered with thick pale blue bloom. Stalk about an inch long, stout, and inserted in a small cavity. Flesh yellowish, firm, melting, and juicy, with a rich, delicious flavour, and separating from the stone. Shoots downy.

A dessert plum of first-rate quality. Ripe in the middle of August.

Royale Hâtive (*Early Royal; Miviam*).—Fruit medium sized, roundish, narrowing towards the apex. Skin light purple, strewed with fawn-coloured dots, and covered with blue bloom. Stalk half an inch long, stout, and inserted without depression. Flesh yellow, juicy and melting, with an exceedingly rich and delicious flavour, and separating from the stone. Shoots downy.

A first-rate dessert plum. Ripe in the beginning and middle of August.

Royale de Tours.—Fruit large, roundish, flattened at the apex, and marked with a distinct suture. Skin light purple, strewed with small yellow dots, and covered with thick blue bloom. Stalk three quarters of an inch long, inserted in a small cavity. Flesh greenish-yellow, tender, very juicy, and richly flavoured, separating from the stone. Shoots downy.

An excellent plum either for the dessert or for preserving. Ripe in the middle of August.

St. Barnabe. See *White Primordian.*

St. Catherine.—Fruit medium sized, obovate, tapering towards the stalk, and marked with a suture which is deepest at the stalk. Skin pale yellow, dotted with red, and covered with pale bloom. Stalk three quarters

of an inch long, slender, and inserted in a narrow cavity. Flesh yellow, tender and melting, rich, sugary, and briskly flavoured, adhering to the stone. Shoots smooth.

A dessert and preserving plum. Ripe in the middle of September.

St. Cloud. See *Goliath.*

St. Etienne.—Fruit medium sized, roundish-oval, frequently somewhat heart-shaped. Skin thin, greenish-yellow, strewed with red dots and flakes, and sometimes with a red blush on the side next the sun. Stalk half an inch long, inserted in a narrow cavity. Flesh yellow, tender, melting and juicy, rich and delicious, separating from the stone. Shoots smooth.

A first-rate dessert plum. Ripe in the beginning and middle of August.

St. Martin. See *Coe's Late Red.*

St. Martin Rouge. See *Coe's Late Red.*

St. Martin's Quetsche.—Fruit medium sized, ovate, or rather heart-shaped. Skin pale yellow, covered with white bloom. Flesh yellowish, sweet, and well-flavoured, separating from the stone. Shoots smooth.

A very late plum. Ripe in the middle of October.

(*To be continued.*)

FLOWER-STAND AND FOUNTAIN.

The desire to furnish the refreshing foliage and the charming flowers of the vegetable kingdom, during the time of year when we are compelled to remain within doors, has led to the construction, for a great length of time, of stands for flowers, and lately fountains have been added to enliven these delightful ornaments.

Fig. 1. Fountain by air-pressure in a cast-iron stand.

The accompanying cut (*fig.* 1), is a design of this kind, suitable for different materials, wood or iron, the form and size of which can be varied according to the taste to be suited and the skill employed, from the most simple and cheap to the most elaborate and luxurious.

The water-apparatus consists of two zinc reservoirs, japanned to prevent rust, (*e* and *f*) of equal size, one of them placed in the upper and the other in the lower part of the stand. Both are connected by means of two pipes, *c* and *d*, which are inserted in the leg of the stand, and all except the ends of the pipes, closed water-tight. Care must be taken that the pipes are arranged properly, or it will not be successful. The upper pipe *c* must reach down low enough in the lower reservoir to allow the water to flow, but no air to run backwards. The pipe *d*, through which the compressed air travels from the under to the upper reservoir, should be inserted in the upper side of the lower reservoir and project almost to the top of the upper one, so that no water can pass through this pipe.

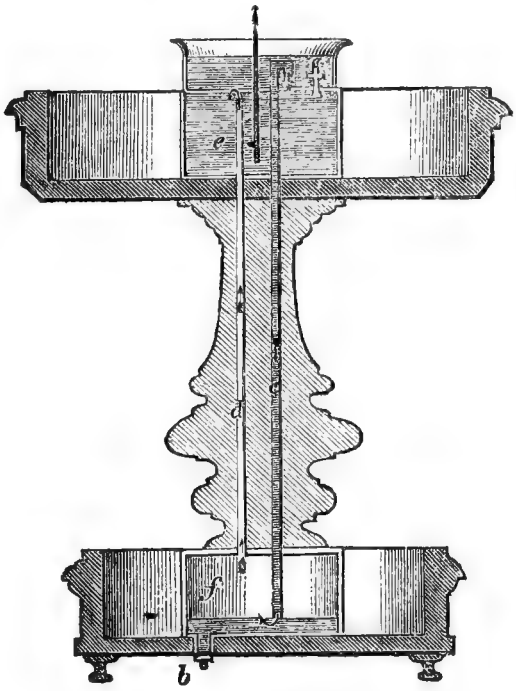


Fig. 2 represents, in section, this simple contrivance.

The upper reservoir has an addition, in the form of a basin; in the bottom of which, on a little elevation, is a hole, closed by a screw, *a*, where water can be poured in with a funnel. The short pipe in the middle of the basin, from which the jet proceeds, must be inserted close to the bottom of the upper reservoir.

When the upper reservoir has been filled with water, the hole is closed with the screw, and the same fluid is poured into the basin until it flows through the discharge-pipe into the lower reservoir. As soon as the stream has begun, the fountain commences to play. The water accumulating in the lower reservoir, drives the air therein through the pipe *d* into the reservoir *e*, compresses it there with a pressure equal to the weight of the column of water in the pipe *c* upon the air in the lower reservoir, and in this way the water is forced through the small nozzle of the basin-pipe, into the atmosphere above, and falls again in the basin, whence it flows into the lower reservoir and continues to do so until the contents of the upper reservoir are expelled.

The larger the reservoir, and the smaller the nozzle, so much longer will the fountain continue to play with uninterrupted force. The jet ceases as soon as all of the water has been ejected from the upper reservoir, when that in the lower reservoir can be withdrawn by the small stop-cock *d*, in a convenient vessel, and the upper one refilled, and the same circulation takes place again.

The above I have translated from C. Schickler's Bulb Catalogue, Stuttgart, thinking it might possibly aid some of your readers to adorn their rooms by this easy and ingenious method.

The apparatus, which could be made at a low price of galvanised iron, to prevent rusting, could be fitted to a marine aquarium, and supply a desideratum for aërating the water which has been felt by those having this object of pleasure, and at the same time increase its beauty without much additional expense.

b Is the stop-cock for emptying the lower reservoir when necessary.—A. F.—(*American Gardeners' Monthly.*)

YOUNG LEAVES OF TOM THUMB GERANIUM TURNING YELLOW.

The fresh growth of young leaves on my *Tom Thumbs* keep turning yellow and falling off; yet Roses and all other plants look healthy, and I fancy I ventilate well.—M.

[The young healthy growth of *Tom Thumbs* early in the spring is always more or less bleached, and is a sure sign the plants are in good health; but if the new leaves thus bleached *fall off*, the roots are in a most dangerous condition; probably as dry as dust in the middle of balls acting as sponges on the outside, top, bottom, and sides. We have seen this cause of failure scores of times, both in pots in-doors, and out of pots in the open ground, and in beds swamped with hand-watering, *the balls* being dry all the while. We have been making a calculation last week, and we have reckoned that over one million of Calceolarias are just now as near being destroyed as your *Tom Thumbs;* one-half being destined to die by inches for want of water, and the other half by getting too much water at the wrong time.]

NOTES UPON FERNS.

Nephrolepis davallioides. J. Sm. (Synonyme—*Aspidium davallioides*, Sw.). *Fronds* rising from a crown in a fasciculate manner, four to five feet long, pinnate, leafy nearly to the base. Pinnæ nearly of the same length throughout, sessile, acuminate, broad at the base, articulated with the rachis, having a few blunt serratures. The upper part of the frond usually fertile, the pinnæ in this case longer and narrower than the sterile, and having numerous deeply crenate lobes, each one of which bears a single sorus at the point, covered by a reniform indusium. *Veins* forking, free, clavate at the apex. Numerous long, thin, wiry stolones, or runners, are thrown off from the crown, which produce young plants freely.

This is one of the most graceful plants in cultivation, and the difference between the fertile and sterile portions is very striking, and gives it an additional source of interest. It is, perhaps, more than any other Fern, adapted for surmounting the "Fern pillar," described and illustrated by Mr. Tyerman, of Chester, in the last volume of The Cottage Gardener, page 259. Its long, elegantly-pendant fronds would droop down on every side, and form a noble object. It is a native of the Eastern Archipelago, and was introduced by Mr. Rollison, through his collector, from Java, in 1852. It requires stove temperature; and propagates itself by the runners mentioned above. The name, Nephrolepis, comes from two Latin words referring to the kidney-shaped (reniform) indusium.

There is a rare variety of this plant called *N. davallioides dissecta;* it is somewhat smaller in size, with more deeply-cut lobes in the fertile portions; these lobes even overlap each other sometimes. It is a very beautiful and interesting plant.

Lastræa podophylla. J. Sm. (Synonymes—*Aspidium podophyllum*, Hook. *Lastræa Sieboldii*, Moore). *Fronds* rising from a thick crown, eighteen inches to two feet long, broadly triangular, coriaceous, pinnate, with four to six pair of opposite lanceolate pinnæ, four to six inches long, the terminal pinna longer. *Veins* deeply immersed in the substance of the frond, so that they are hardly visible, pinnate, and bearing on the middle a sorus, covered with a roundish indusium. *Stipes* rather thick, and covered at the base with shining brown scales.

A native of China and Japan; it was imported some years since from Hong-Kong. It is quite hardy, and being very distinct from any other Fern it is a great acquisition for the rockwork out of doors. Unfortunately, its fronds are not glossy and shining, as in Cyrtomium, but are of a dull green colour. It is usually called *Lastræa Sieboldii* in the Belgian nurseries, and is often found under this name in English gardens. It is probable that as our intercourse with Japan increases we shall soon hear of other Ferns from that country as hardy as this one.

Adiantum reniforme. L.—*Fronds* growing in erect tufts from a scaly rhizome, simple, entire, reniform, shining, one to one and a half inch in diameter. *Veins* radiating from the base, forking, venules free. *Margin* of the frond reflexed, and bearing the oval groups of sporangia on the under side. *Stipes* shining purple, with a slight tuft of down at the base and just below the point at which it joins the frond.

Although this Fern has, according to books, been cultivated in this country for nearly two hundred years, it is now as great a favourite as ever—perhaps more so since Wardian Cases came into fashion, it being so well adapted for growth in these elegant little ferneries. It is a native of Madeira and Teneriffe; it is found most plentifully in ravines on the north side of the former island, generally on rocks kept constantly moist by the spray of waterfalls. It should be grown in the crevices of porous sandstone with but little soil; it succeeds admirably in a cool greenhouse. There is a new species lately discovered at Moulmein (India) very like this, but having the fronds articulated with the stipes; it is named *Parishii*, in honour of its discoverer.

While this species is confined to the islands above-mentioned, there is upon the opposite side of Africa, in the islands of the Mauritius and Bourbon, a much larger Fern of the same character called *A. reniforme asarifolium.* It is made a distinct species by some botanists; but as it differs only in size it is, perhaps, better to consider it merely as a variety. Its fronds are three inches in diameter. It deserves a place in every fernery, and requires a little more heat than *A. reniforme* to develope itself in perfection.—Karl.

THE RHODODENDRON.

(*Continued from page* 11.)

CHARACTERISTICS OF A SUPERIOR VARIETY.

1. *The habit of the shrub* should be compact and bushy; the foliage bright green, large, and well disposed round the stem, abundant, especially under the flowers.

2. *The form of the bloom.*—The petals should be smooth at the edges, stiff, and so disposed as to form a bell-shaped bloom. Each division should overlap the next, so as to hide the division. The truss of the blooms should be formed like a pyramid, each flower just to touch the next without crowding. The footstalks should be stiff and elastic.

3. *Colour.*—This should be bright, constant, and distinct, without fading. Spots should be a distinct contrast in colour, and evenly placed on the petal.

4. *Size.*—Each bloom should be at least two inches and a half in diameter; a small bloom being always considered inferior to a large one that has equally good properties.

The reverse of the above characteristics is of course objectionable; such, for instance, as a straggling habit, small foliage, small flowers, and those with open, loose, ill-shaped petals, though good colours may be present.

I now proceed to the last section—namely, a selected list of good kinds. I have arranged them in colours; so that for arrangement in masses of colour the cultivator may select such as will serve any purpose he may require.

Those marked *C* are varieties of *R. Catawbiense.* The rest are raised from hybrids of the *arborea* varieties. They are all perfectly hardy and late bloomers.

WHITE.

Album elegans (*C*)	Gloriosum (*C*)
A. grandiflora (*C*)	Le Vivandiere
A. virginale	Luciferum (*C*)
Butlerianum	Maculosum (*C*)
Clowesianum	Nivaticum (*C*)
Delicatissimum	Palmyre Bertin
Eburneum (*C*)	Perspicuum
Enchantress (*C*)	

BLUSH.

Aclandianum	Minnie
Candidum	Pavonium
Glennyanum (*C*)	Pellucidum (*C*)
Gulnare	Standard of Flanders
Ingramii	

LIGHT ROSE AND PINK.

Albion	Mammoth
Brutus	Meteor (*C*)
Congestum roseum	Mrs. Loudon
Egregium (*C*)	Paxtonii
Elegans	Perryanum
Fanny	Pulchellum
Giganteum (*C*)	Roseum superbum
Madame Sontag (*C*)	R. pictum

DEEP ROSE.

Alunno	Garofalo
Canaletto	Helena (*C*)
Compeer (*C*)	Lady Easthope

Magnificens (*C*)
Menziesia
Mrs. John Waterer
Mirandum
Peruzzo
Reedianum
Rubens
Roseum picturatum
Sandlefordianum
Titania (*C*)
Triomphe d'Angiers
Titania

LILAC, IN VARIOUS SHADES.

Cœlestinum (*C*)
Eminent (*C*)
Everestianum (*C*)
Fimbriatum (*C*)
Leopardii
Madame Desse
Magnum (*C*)
Sebastian
Sir Colin Campbell
Sherwoodianum (*C*)
Versicolor (*C*)

SCARLET.

Coccinium punctatum.
Gozzoli
Guercinæ
Incomparable
John Waterer
Sun of Australitz

ROSY CRIMSON.

Æneas
Atro-roseum
Barclayanum
Bassano
Bellini
Blandyanum
Constellation (*C*)
Duke of Norfolk
Elfrida
Fleur de Marie
Geranioides
Iago
Jackmannii (*C*)
Jacksonii (*C*)
Ingomar
Jubar
Lady E. Cathcart
Madame Van de Weyer
Maid of Saragossa
Perugino
Princess Amelia
Raphael
Tintorette
Velasquez
Vivid

DARK CRIMSON.

Alaric
Atro-sanguinea
Attila
Beauty of Bury Hill
Bronzino
Captivation
Correggio
Cruenta
Faust
Gemmiferum
Hendersonii
Johnsonianum
Lefevreanum
Louis Philippe
Parmegianum
Parryanum
Pluto
Poussin
Prince Albert
Salvator Rosa
The Grand Arab
Tamerlane
Vasari

SALMON CRIMSON.

Attraction
Blatteum
Celebrandum
Genseric
Rhodoleucops
Victoria

ROSY PURPLE.

Antonia
Grandiflorum (*C*)
Gretry
Maculatum (*C*)
M. grandiflorum
M. nigrum
Maculatum nigrum superbum
M. purpureum
Ne Plus Ultra
Pardoloton
Standishii

PURPLE.

Londinensis
Maculatum purpureum (*C*)
Purpureum elegans (*C*)
Purp. grandiflorum (*C*)
P. speciosum (*C*)

DARK PURPLE.

Atro-rubra-purpureum
Currieanum
Huneric
Lady Dorothea Neville
Maculatum nigrum (*C*)
Melanthauma
Nero
Nireus
Remarkable
Stamfordianum

MARGINED.

Alarm, white centre, rose edge.
Bylsianum, white, with crimson edge.
Concessum, light centre, with a broad margin of rose.
The Gem, white ground, with a delicate pink edge.
Zuleika, delicate blush, with rose margin.

DOUBLE FLOWERS, CURIOUS AND BEAUTIFUL.

Hyacinthæflorum, double lilac.
Versicolor flore-pleno, rose.
Vervanæanum pleno, good lilac, large flowers. T. Appleby.

CYCLAMEN CULTURE.

Do Cyclamens store up *in their bulbs* the elements of future growth, so that the bloom of any season depends in great measure, as in the Hyacinth, upon careful cultivation of the foliage in previous years? or, are their *fibrous roots* of more than one season's duration?

If these fibrous roots are only available for one season of growth, which, I believe, is the case, would it not be better to repot annually in fresh soil, instead of once in three years, which seems the more general practice?

I grow all sorts, but the varieties of *Persicum* are my favourites. I have now a pan of seedlings in a cool stove (53° minimum, 70° maximum), how long will it be advisable to keep them there? The seed was sown in the middle of February of this year. They have only their first pair of leaves, perhaps a quarter of an inch across; and the young bulbs (which seem to be formed before the leaves appear), are about the size of No. 2 shot.—A. C. S.

[All Cyclamens and all other bulbs and tubers, have the "elements of future growth" stored up every year according to the season and the conditions under which the yearly growths are made. When these are favourable, they tell wonderfully on the next start; and when they are unfavourable, they tell unpleasant tales.

"The general practice" with Cyclamens is the worst practice in gardening; only a few nurserymen and a gardener here and there out of five hundred, treat them well and as they ought to be treated. Our farmers beat the globe at growing bulbs and tubers; but too many of our gardeners hardly know how they ought to have the "elements of growth" up to the mark. The roots of all your Cyclamens are perennial, and the bulbs rest a long while every year. Therefore, instead of heeding "general practice," take a practical step, think for yourself, and consider if there can be the smallest reason to fear about shaking the old soil from the roots, and supplying them yearly with fresh. If Turnips were perennial, depend upon it the farmers would be transplanting them into fresh-tilled fields every winter.

But, about the seedlings, you are too much of a farmer, else your seedlings are not Cyclamens at all. Not one of the family produces two leaves at a birth. As you like the *Persicums* best, never dry them, as the "general practice" does; but when the flowers and the frost are done with for the season, plant out the balls entire in a warm border, where the roots will not be disturbed the whole summer, let them take the rain and the drought as they happen to come; but do nothing more on your part till the middle of August, then watch them, and the moment you perceive a move for fresh leaves, up with them that day, shake off every particle of soil from the roots, and pot them in the flowering-pots at once, in good holding loam, with a little sand and very rotten cowdung, and so dry as that it will sift like leaf mould, drain particularly well, and let the bulb be one-third out of the earth; and if you could plunge the pots in a cold frame, one watering would do till after Christmas.]

NOTES ON NORWAY.

Houses of the Poor.—The poorest streets are composed of clean, comfortable-looking, wooden houses; and the poorest people have a well-conducted, respectable manner and appearance. There are no blackguards visible: no people that any reasonable person of any rank could object to sit amongst in a railway carriage. The windows of the humblest houses are scrupulously clean, and filled with bright flowers in earthen pots, carefully coloured with red ochre. Flowers in a poor man's dwelling are the outward symbols of most of the domestic virtues. I have had much experience in seeking lodgings in strange places, and always make first application at those houses which have well-tended flowers in the windows.

Oatcake.—Fladbröd is a remarkable substance, composed of bruised Oats cemented together by some means, and flattened out wonderfully. It differs considerably from Scotch oatcake, being very much thinner, darker coloured, and more chippy; and is more like the material of which hat-boxes are made than anything else I am acquainted with. If you strip the paper off a hat-box you will find that it is not made of cardboard, as it appears to be, but of a thin veneer of wood; eat a small quantity of this veneer, and you will be able to form a very fair idea of the flavour of fladbröd; only the fladbröd is rather more

crisp and a little less resinous. It is made into circular discs from eighteen inches to two feet in diameter; and a hungry man, who is fond of it, can consume several square yards at a meal.

Kitchen Arrangements.—The kitchen at Jerkin is justly celebrated. It is a large wooden hall, a log saloon, whose rich brown smoke-tinted timbers and blazing fire, where something is always frying, form a most enjoyable contrast with the bleak waste outside. Every tourist of sound taste prefers to do all his feeding in this kitchen, and leaves the fine room over the way to the inexperienced visitors. It is exceedingly difficult to leave off eating in such a place, prepared as the appetite is by such an atmosphere, and incited continuously by the hostess, whose sole happiness evidently consists in feeding people. She oscillates perpetually between the fire and the guests, aided by a couple of sweet satellites, the most rosy-cheeked of kitchen-maids. Never a driver leaves the door, but the black bottle is brought from its lurking-place, and a toss of the head, a smack of the lips, and the Norwegian grasp of thanks follow. Even after this, two or three deep inspirations may be heard, showing further how the drinker appreciates the liquor by making the most of the vapour that still lingers in his throat. I felt strongly tempted to stay another day here; but the midnight sun in the far north will not wait for me, so I resolutely pushed on; bidding a temporary farewell to my English friends, and a long one to the model hostess and her memorable kitchen. I had almost forgotten to mention the beautiful flowers that decorated that kitchen. Every window was filled with them, and all were in full blooming condition. They were not mere alpine plants from the fjeld outside, but bright southern exotics, that must have been brought here with considerable care and expense, and cannot be retained in such a climate without much attention. There were flowers at several of the other stations, but not equal to these. My bill for dinner, bed, and breakfast amounted to two marks, or 1*s.* 9*d.*

Derivation of Malt Beer, &c.—Stopping at Rise, a neat and rather smart station, I asked for some "öl" (ale) with my supper, which was brought to me. It was a turbid liquid, of a reddish-green colour, and from its flavour appeared to be an infusion of hay, flavoured with a bitter decoction of Pine knots. Possibly it was the beverage made from the *molte beer*, a large red three-lobed berry, that grows wild upon the hills. The ale made from malt and hops, which is so commonly drunk on the other side of the fjeld, appears to be a modern innovation; it is called *Baiersk*, the Norsk for Bavarian, and is remarkably good. Beer made from berries is as old as history, and I suspect that the beer of our own country was of this kind, before the process of malting was discovered, and that the name is derived from "*beer*," a berry; probably the word *malt* is derived from *molte;* for the sweetened barley, being used as a substitute for the sweet tasting "*molte beer*," would naturally receive its name. Breakfasted on eggs and ham, which to-day I had "*steaked*," *i. e.*, fried. The learned in words tell us that our word *steak* is derived from the German "*stuk*," a lump or slice; that a beef-steak therefore means a *slice* of beef. Nothing of the kind: a beef-steak originally means beef fried or broiled, or to be fried or broiled. The continual use of the verb to *steak* here forces this etymology upon one; and the use of the word "steak" in the north-east parts of Scotland—where a slice of salmon, if broiled, is called a salmon-steak, but a similar slice boiled is no steak at all—confirms this view. *Lax*, the Norwegian and Danish name for salmon, is still used occasionally in that part of Scotland. The Norsk verb *to boil* is "*koge*," —anything boiled is "*kogt*," pronounced *cooked:* the *g* being generally hard, like *k*. Scholars refer us to *cuocere* for the origin of our word.

Boiling Eggs.—All tourists who venture beyond the limits of hotels, who are not utterly dependent on "waiter, chamber-maid, and boots," should learn as much as possible concerning the cooking of eggs; they should know how to make omelets of eggs mixed with anything whatever, and more especially with cheese. They should be aware of the fact that albumen coagulates at a temperature of about 380°, or 32° below the boiling-point, and becomes tough when heated above that; and therefore that to boil eggs delicately, the best method is to put them in boiling water, and then set the saucepan by the side of the fire for seven or eight minutes, that the eggs may be heated through to about 180°, and not to 212°. Eggs may be usually obtained where no other animal food is to be had, and they have the advantage of being reliably clean inside, even under the most unfavourable circumstances.— (*Williams's Through Norway with a Knapsack.*)

TO CORRESPONDENTS.

Cerastium tomentosum (*J. Smithson*).—We do not know what the plant is which you name, but *Cerastium tomentosum* will usually serve for an edging round any bedding plant.

Sea-shore Planting (*F. I. H.*).—In what part of the British Islands is the planting required? The Land's End and the Orkneys would require very different trees.

Potato Culture (*G. Montague*).—Mustard in flower dug into the ground last year we think a sufficient manuring for your Potatoes. We never apply dung to them at planting-time; nor do we ever grow the same crop on the same plot two years successively, yet we have seen good crops of Potatoes produced for four or five following years on the same ground. We never earth up Potatoes, as it retards their maturing. No experiments are yet recorded showing how to prevent the Potato murrain; deep earthing-up the plants certainly does not.

Pronunciation of Bijou.—"I fear Mr. Beaton's article of March 27th, headed 'Vauxhall Nursery—Messrs. Milne & Co.,' is apt to lead beginners astray in the pronunciation of the word Bijou. By sounding the letter *i* like *e*, and *j* like *z* in azure, or *s* in pleasure, it would give the correct pronunciation."—R. W. T.

Greenhouse Azaleas (*An Old Subscriber*).—Camellias, greenhouse Azaleas, and Roses, with very few exceptions, when classed for effect as you ask for, may be said to possess only two colours—white and red. All the reds, and their shades of crimson and purple form "a good contrast" with all the whites, and their light shades, and for this reason, that all white flowers contrast well with flowers of all other colours in-doors and out. Why a white flower contrasts with any other flower is because the white throws more light on the other, as it were, and so makes it more telling to the eye than it otherwise would be. We borrow the following list of greenhouse Azaleas from the first volume of the "Illustrated Bouquet," as the best that has yet appeared, but for details you must refer to that work:—Admiration, Beauty of Europe, Bride, Cedo Nulli, Chelsoni, Crispiflora, Delecta, Duke of Wellington, Duc de Brabant, Etoile de Gand, Eulalie (Van Geert), Gladstanesii formosa, Glory of Sunning Hill, Gem, Holdfordiana, Illustris alba, Iveryana, Juliana, Leopold I., Louis Margottin, Louis Napoleon, Madame Miellez, Model, Modesta, Perfecta elegans, Perryana, Petuniæflora, Princess Bathilde Van Dessau, Roi Leopold, Reine des Panaches, Rosea elegans, Rosy Circle, Sir Charles Napier, Stanleyana, Variegata superba, and Herzog Adolph Van Nassau. For the list of Camellias refer to our number published March 27th. For Rhododendrons see what Mr. Appleby says to-day.

A Cast of Flower Pots (*M. A. E.*).—The number constituting a cast depends upon the size. Of 2's there are two to the cast, of 4's there are four, and so up to "thumbs" or 80's, of which there are eighty to the "cast."

Spergula pilifera, subulata, and saginoides (*T. H. R.*).—Both your plants are *Spergula subulata*. The difference between the latter and *pilifera* cannot be made out without flowers; but on light ground we prefer our native Scotch *Spergula saginoides* to both of them—that is, to *pilifera* and *subulata*. *S. pilifera* seems the best for heavy clay land, and the Scotch, the English, and the Italian form of the same plant, do equally well on good common soil, and the three have been industriously sold under the newer name of *pilifera*. *S. subulata* is a native in almost every parish in England and Scotland; but *saginoides* is mostly in Scotland, and *pilifera* has been found wild only in Corsica. They are three forms of the same plant. The practical proof to decide between *pilifera* and the British kind, is to put a tuft of each under a hand-light, or a bell-glass, or cold, close frame. The new growth of *pilifera* stands upright as a dart, that of the other creeps along the ground. A child can thus prove them. Mr. Beaton says, if your plant is really *Saxifraga oppositifolia*, "a bonny tufty kind o' plant, wi' a wee purple kind o' flower, just send him as mony o' them as you can, and you will muckle oblige him indeed."—D. B.

Variegated Holly (*Ilex*).—We never advise private parties to bud or graft variegated Hollies, because they can buy them for less money than they can rear them. They will graft any day from March to August, and bud as long as the bark will run in summer; but then it will be twelve or fifteen years before they can be up to the style of a front row in a shrubbery. The best row of variegated Hollies we know are now on sale at 20*s.* the plant, each averaging twelve feet high, and three feet through, and they are just forty-five years old, and the finest we have ever seen at that age.

Purple Nosegay Geranium (*W. W.*).—The *Purple Nosegay* is the same as the *Fothergillii* of Sweet's "Geraniaceæ," and of The Cottage Gardener. It is also the same as the *Purplish Pink* of The Cottage Gardener, and of most lady artists who use it, and the *Pink Nosegay* of country cousins, and *Green's Seedling* of olden times, and of the Pine Apple Place Nursery, under the two last proprietors before the present owners, but they, and most of the London firms, sell it under all these names. It is the one which had been talked of so much last year at the Crystal Palace, from a large corner bed of it in the angle of one of the walks leading up to the Rose Mount, and the one of which Mr. Eyles intended to plant there this season twelve or fourteen large beds. The colour, however, is neither purple nor pink, but a mixture of both. In shading, Lady Middleton has used it as the third degree, or darkest shade of pink, for the last twenty years.

Houses covered with Tiffany.—Mr. Standish has favoured us with the following reply to the inquiry of *An Old Subscriber*:—"The tiffany will be quite protection enough for the early-flowering Rhododendrons; in proof of which I have now in bloom a fine specimen of *R. fulgens* (one of the Sikkim kinds) which has been under the tiffany only all the winter; and although the frost lately has been severe, and the weather changeable, still it has bloomed perfectly. There is no doubt that tiffany will suit Camellias better than almost anything else, and will be quite protection enough for them, as well as for Azaleas, and a great many other half-hardy plants. What is more, it protects them from hoar frost. In fact, from my experience of it, I am putting up enough to cover an acre."—John Standish, *Nurseries, Bagshot.*

Rhododendrons (*J. W.*).—Mr. Beaton declines answering any questions not sent first to the Editors, as has been repeatedly requested.

Names of Plants (*J. O. G., Thurso*).—Your plant is the *Cineraria amelloides*, the Blue-flowered Cineraria or Cape Aster. (*M. D.*).—Your shrub is *Garrya elliptica*. It is propagated by layers.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

May 23d and 24th. Beverley and East Riding of Yorkshire. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

June 6th, 7th, and 8th. Bath and West of England. At Dorchester. *Sec.*, J. Kingsbury, Esq., Hammet Street, Taunton.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

EXHIBITING POULTRY PROFITABLY.

Many people imagine success in exhibiting poultry can only be accomplished at great expense. This is wrong. The essentials, after possession of the birds, are knowledge and painstaking. If the exhibitor is determined to possess a prize pen, and to breed from it, he must buy it, and it will cost him dear. He must be prepared to find that even the first-prize birds do not breed all first-prize chickens, and that, however good the blood, neglect will neutralise it all. But even if the produce be all good, some will be better than the others, and it is here knowledge is required. There is no royal road to it, and the exhibitor must be content to learn by degrees. Having bought a pen of unquestionable merit, and that has passed the ordeal of all the competent judges, he should set to work to study all the points of excellence till they are familiar to him. Nothing but practice, close observation, and, if we may use the word, study, will make a judge.

We have heard of a surgeon who was a good companion, and liked port. He was no drunkard, but he took just that quantity which he defined to be excess in a patient, and his temper changed with each dose; he became low-spirited after the second bottle, and told with grief of the fatal mistakes he made in early practice. "Ah!" he would say, "that over-dose of calomel, poor young fellow! The mistake I made in bleeding that woman! The profession has much to answer for;" and so on. Just so, we have heard from some of our best judges that it was years before they attained to the confidence they should possess, and they can recollect the mistakes they made in the early days of judging, the faults of claws and combs that were passed over, &c.

Now, if these gentlemen studied for years to attain the knowledge they now exercise, then exhibitors cannot expect to attain it at less cost or trouble, or in less time. There is close connection between the knowledge that awards the first prize, and that which selects the pen that gains it. This knowledge is not enough unless there is painstaking as well, and the two combined will lead to as much certainty as can be in such things.

We are dealing with profitable poultry, and therefore we tell those who wish to make it so by means of exhibition that all the pains they can take are not too much for success.

Money may then be made by taking prizes, by selling prize birds, and birds exhibited.

The poultry market remains. This will after all be the principal source of profit; but it is useless to those who look for large and speedy emoluments. It is necessary to look at the progress of the poultry question, and we believe it is a history of the world. Many years ago fowls sold at a small price, and had no other vocation than to appear on table. It was of no avail that people a hundred miles from London heard that chickens were wonderfully dear in the metropolis. They had them, but there was no conveyance; the coach was too expensive, and too slow. There was, besides, the uncertainty whether the coachman could take them. The chickens were served at dinner, and while remarks were made on their juicy, white meat, and the general delicacy of their flavour, there was regret at the small quantity of it; and the thrifty, it may be, anxious parents regretted they were not sold, and the money invested in something more substantial. Among the reforms introduced by railways none are greater than the opening of the London markets to all who live on the line of rail. Those who are a hundred miles distant enter freely into competition with those who are close to London. Those who breed for exhibition will breed early, and many of the early chickens will have to be killed, not for any fault that lessens their value on the table, but for such as render them unfit for exhibition. Remuneration, or even self-support in poultry, must, like other things, be made up of many parts, and this is one:—A chicken aged fourteen weeks in April will have cost 1*s.* 9*d.* at the outside;—it will realise 3*s.* 6*d.*—a good profit. A dozen will pay a guinea, and that will buy some bushels of food. But it is with poultry as with everything else, there is something to learn, and it takes time.

We have often in our columns pointed out the method of feeding and killing fowls for the table. To insure the best price they must be sent in the best condition, and a deviation from this is a loss in money. We believe money may be made by feeding for the table, and our next paper will treat of it.

FATTENING POULTRY.

The writer, who has a large range for her poultry, which are exceedingly well fed, has been in the habit of having them killed, without having them previously put into a coop. They have not turned out very satisfactorily. She would be glad to know if the Editor of The Cottage Gardener would advise their being put up for a short time before they are killed, and what kind of food he would recommend her to adopt for her poultry at this time of the year. What sized eggs do large Cochin-China hens lay?—A Subscriber.

[For instructions in fattening poultry we advise you to buy Mr. Baily's book on the subject. We can, however, answer your present question. However good your feeding may be, yet while your fowls are at liberty, the food all turns to hard muscle and growth, instead of to fat and soft flesh. Exercise is very good for health, but it is not a fattening process. Shut up the fowls you wish to fatten in a small coop, allowing them just room to stand and change their position, but no more. Place the coop in a quiet and rather dark place. Let there be a board in the front on which food may be placed, and let them be fed three times per day with ground oats slaked with milk to such consistence that when placed on the board it will not run off. Allowing this to be the test it should be liquid as possible. Let them have three times per day as much as they can eat, and when not feeding let them be covered with mats or sacking. If they are doing well they will heat and steam, and the heat should be perceptible to the hand when it is put in. This should fatten them in ten days. All Cochin-Chinas lay small eggs compared to their size.]

GAPES IN CHICKENS.

We have an old poultry-yard and spacious brick poultry-house well ventilated and whitewashed, but the young chickens constantly have the gapes, and die in great numbers, and now we have lost two sitting hens with them. Can any of your subscribers advise us how to get rid of this pest among poultry?—C. R.

[We cannot understand hens dying of the gapes. The malady is confined to chickens only, and the hens must have died of something else. We dread an old poultry-house. The architects were not always learned in poultry requirements:—flag stones were laid down and carefully cemented to keep out rats; brick floors to render sweeping easy, and the flooring durable; while others had boards laid down that cleanliness might be observed. All these things are fatal to poultry in the highest possible degree, but they do not cause gapes. It has always been thought, and we think, they arise from impure water, and very often that which is called the poultry-yard possesses a pond, not supplied by a stream and constantly overflowing, but filled up by a flowing in of every description of liquid. We believe this will give gapes. The following is said to be a cure:—Dissolve 2 ozs. of sulphate of iron in sixty drops of sulphuric acid. After it has stood twenty-four hours mix it with two gallons of water. Let it stand two days, and then administer it by putting a tea spoonful to a pint of water. We have used this with benefit, but if the chickens are supplied with fresh *spring* not *rain* water, and are kept in the fresh air, we do not think you will have to complain of gapes.]

BEET ROOT AS POULTRY FOOD.

I see in the number of your valuable paper for March 20th, a notice from a correspondent respecting the use of Mangold Wurtzel root as a food for poultry. I have used the root of the garden Beet (Red) for this purpose for several years; sometimes in the raw state, a root being thrown down in the poultry-yard; but generally in the cooked state mixed with the scraps from meals of meat, potato, bread, &c., and in this case the Beet is

invariably picked out by my poultry with the greatest avidity. I find it has increased the health of the fowls in every instance. I may also safely say it conduces to an increase in eggs, as also to an improvement in their colour.—Spangled Hamburgh.

PRESERVING EGGS—EGG-EATING HENS.

If Mr. Smith were to rub his eggs over with the white of an egg before putting them up on his shelves, I think he would find that less of their contents would be lost by evaporation, than at present seems to be the case. Eggs that I have *varnished* have kept good for ten months. The white of an egg is very useful also in preserving the colour of birds' eggs, though it gives them a rather unnatural glossiness.

Instead of hens intentionally breaking their eggs for the purpose of eating them, is it not more reasonable to suppose that they are broken unintentionally, owing to the thinness of the shell? I have lost many eggs this year, and now believe that that is the true cause, though I at first thought the hens were to blame.—G. Montague.

LIGURIAN QUEENS—WHEATEN FLOUR—BEE-BOXES AND DYSENTERY.

Without for one moment imagining that your excellent correspondent, "B. & W.," is at all likely to make a mistake in bee matters, I am willing to point out certain rocks a-head in the course he proposes steering with his Ligurian queens, which might otherwise make fatal shipwreck of the hopes of those who should attempt to follow him without possessing his intimate acquaintance with the intricacies of the channel.

All attempts at multiplying Ligurian stocks, either artificially or by natural swarming during the year in which they are received, are to be deprecated as resulting almost to a certainty in hybridising the young queens. It is not very likely that any Ligurian drones will be bred until another season, and in this case hybridisation is unavoidable, if any increase be attempted. But even supposing some Ligurian drones to be produced, there would still probably remain a majority of black drones bred by the deposed monarch; and these with other common drones from their own or neighbouring apiaries, would preponderate in so overwhelming a manner as to produce the same result with almost equal certainty.

Although it appears that some German apiarians have countenanced the idea that the Ligurian bee is rather improved than deteriorated by a cross with the common species, that notion is most earnestly combatted by M. Hermann, who avouches that no bees are at all equal to the pure-bred Ligurians. This opinion has my most hearty concurrence, and I hope that all bee-keepers who may obtain these interesting strangers will neglect no precautions which may tend to preserve the purity of the breed. If hybridisation be once permitted, it will be very difficult to retrace the false step, and the result will probably be, that the Italian species will quickly become merged in the ordinary bee.

The season is, as "B. & W.," remarks, unprecedentedly late, and the weather has been most unfavourable for pollen gathering. Since my successful experiment of the 22nd of March (which I recorded at the time), I have endeavoured to make good the deficiency of pollen by supplying all my stocks with wheaten flour, which I find consumed with great rapidity. The plan I have adopted, is to place about a teaspoonful on one end of a slip of card four inches long by three-quarters broad, and thrust it into the mouth of the hive. The quantity made use of varies much in different stocks; the most populous appropriating the largest portion. Very frequently the whole teaspoonful will be carried off in two or three hours.

A word about wooden bee-hives and dysentery. All my stocks are in wooden boxes, and I have not used straw hives in any form, but I never in my life had dysentery in a hive, and know nothing practically regarding it—a degree of ignorance which is certainly not regretted by—A Devonshire Bee-keeper.

SIX MONTHS' KEEP OF THREE HIVES AT THREE DIFFERENT EXPOSURES.

From experiments tried for several seasons, I am satisfied that bee-writers over-estimate the winter's consumption of these insects during the dormant season, the quantity being inconsiderable compared to the drain that must take place as the breeding season advances, which, however, cannot be ascertained from the increasing weight of the brood. Take, for instance, three of my hives, weighed 1st March, which had neither feeding nor bees added:—

No.	September. lbs.	ozs.	March. lbs.	ozs.	Deficiency. lbs.	ozs.	
1.—Stewarton	43	13	33	0	10	13	N. aspect.
2.—Improved collateral	20	7	10	10	9	13	S. ,,
3.—Common straw	19	6	11	7	7	15	E. ,,

These figures are the nett weights—bees and combs.

No. 1.—A doubled swarm of last season (2 14-16 lbs. of 7th and 5 11-16 lbs., of 30th June), in three boxes placed in a little half-staircase window, 22 feet from the ground, facing the north, yielded a two-guinea box.

No. 2.—A 4¾ lb. swarm of 8th June, 1858, placed south-bend of garden wall, yielded 20 lbs. comb in a super that season, two swarms last, never fed.

No. 3.—A 3 2-16 lbs. swarm of 2nd July last, placed east-bend of garden wall, yielded nothing.

Although these results fall considerably short of the customary allowance of 18 lbs. or 20 lbs. supposed to be necessary to keep a swarm through the winter, still I would by no means advocate the retention of weak hives, as they are generally troublesome and unprofitable. The well-known rule that the higher an animal is in condition the easier is it kept, applies equally to bees. For example: End of July, last year, being desirous to people a couple of hives of an improved construction, I beat out the inmates of two straw hives, twenty-four days after swarming, appropriating their store free from brood. The latter part of the summer being wet and unfavourable, my new hives made little headway. At the beginning of September, I, therefore, added the bees from two top swarms to each, supplying both with 14 lbs. sugar and honey converted into syrup. On weighing these hives 1st March, was astonished to find them down to the miserable zero of 5 3-16 lbs. and 3 13-16 lbs. respectively, including bees.—A Renfrewshire Bee-keeper.

P.S.—Many thanks to your able correspondents, "A Devonshire" and "A Bedfordshire Bee-keeper," for their prompt advice anent the "Attack of the Blues." The cure of the former I had in a measure anticipated by netting over the entrance and securing a number of the marauders in the hair-snares set thereon, the assailed at once issued forth and put a period to their struggles. The effectual remedy of the latter (*Nux vomica*) shall have a fair trial next season, should I again be visited with these pests, the genial influences of the spring enticing them to the woods for the present.

OUR LETTER BOX.

Rearing Chickens (*J. M.*).—If we tell you what we have done with our chickens you will, perhaps, see why you have failed. We have never been so uniformly successful. All our chickens that came out in January, February, and March were put with the hens under rips, on the hard gravel-paths of a kitchen garden. The rips are well covered every night with old matting, sacking, or carpet. They were fed during the long nights after dark, and before daylight. They have bruised wheat, boiled egg chopped fine, bread-crumbs, bread and milk, and paste made with oatmeal. Their drink, morning and evening, is beer; they have milk in the middle of the day. They spread themselves all over the garden, principally among the strawberries; they grow fast, and they do no mischief. The gravel-path, where the rip is placed, is covered two inches deep with fine sand and dust. The losses between the time of hatching and now, when some are nine weeks old, have been, *from all causes*, four per cent. We never had stronger chickens, and, spite of the long and severe winter, there is not a weak one among all these that were never in their lives under a roof.

Antwerp Carriers.—If "Capercaillie" will communicate with "*F. C. H., Post-office, Hilsea, Hants.*," he may, perhaps, hear of some Antwerp Carriers.

Wild Canaries (*J. Pell*).—I have not seen any birds from Teneriffe or the Canaries direct. Those from Madeira, of which a description is in hand, resemble a common grey Canary. The birds from St. Helena I regard as a different species, and identical with the Serin Finch of the south of Europe. If "J. P." can give any information respecting the Canaries of the Canary Islands, I shall esteem it a favour.—B. P. Brent.

LONDON MARKETS.—April 9.

POULTRY.

Good poultry is still scarce, and prices are consequently on the advance. For a time there is an evident lack of first-class goods.

Each—	s.	d.		s.	d.	Each—	s.	d.		s.	d.
Large Fowls	6	0	to	7	0	Turkeys	0	0	to	0	0
Smaller Fowls	4	6	,,	5	0	Guinea Fowls	2	6	,,	3	0
Chickens	4	0	,,	4	3	Pigeons	0	8	,,	0	9
Geese	0	0	,,	0	0	Hares	0	0	,,	0	0
Goslings	7	0	,,	7	6	Leverets	2	0	,,	3	0
Ducks	0	0	,,	0	0	Rabbits	1	4	,,	1	5
Ducklings	4	6	,,	5	0	Wild ditto	0	8	,,	0	9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	APRIL 17—23, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
17	Tu	Sagina erecta.	29.803—29.741	50—24	N.W.	—	1 af 5	58 af 6	32 3	26	0 34	108
18	W	Lithospermum purpureo-cœru-	29.808—29.710	47—22	W.	—	IV	VII	43 3	27	0 48	109
19	Th	Asperugo procumbens. [leum.	29.656—29.512	51—25	N.E.	—	57 4	1 7	56 3	28	1 1	110
20	F	Primula elatior.	29.509—29.430	54—27	E.	—	55 4	3 7	9 4	29	1 14	111
21	S	Sun's declin. 12° 2′ N.	29.630—28.518	53—21	N.W.	—	53 4	4 7	sets	☽	1 26	112
22	Sun	2 Sunday after Easter.	29.725—29.667	58—23	N.W.	—	51 4	6 7	15 a 9	1	1 38	113
23	M	Primula officinalis.	29.818—29.752	54—39	N.E.	.28	49 4	8 7	29 10	2	1 50	114

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 58.7° and 36.7° respectively. The greatest heat, 77°, occurred on the 22nd, in 1858; and the lowest cold, 20°, on the 19th, in 1852. During the period 136 days were fine, and on 95 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

When all the principal crops are in the ground, properly labelled, and the beds, borders, and alleys neatly squared off, the Box or other edgings trimmed, and the walks clean and well rolled, the kitchen garden affords a degree of daily interest that is not surpassed by any other season. *Protect seeds* appearing above ground from birds. *Beans (Broad)*, where the last sowing is above ground another sowing may be made. *Cardoons*, sow seed in trenches where the plants are to remain; the trenches to be about four feet apart, with a few seeds dropped in patches at intervals of eighteen or twenty inches. *Cabbage*, successional sowings of good kinds to be continued. As autumn-sown plants are very scarce, the spring sowing to be forwarded as much as possible by pricking out the plants on a warm border, and watering them when requisite. *Celery*, prick out the young plants into a frame or box, and attend well to the early plants with water; if any are under glass sufficient air to be given to keep them stocky. *Capsicums*, attend to them, as also to Chillies, Basil, and Knotted Marjoram, to be in a fit state for planting out in May. *Cauliflowers*, prick out the young seedlings on a warm border, earth up any that have withstood the severity of the winter under hand-glasses. *Cucumbers*, keep the shoots regular; sow seed, to produce plants for ridges. *Marigolds*, sow, where they are required for kitchen purposes. *Melons*, as soon as a sufficient number of fruit-blossoms for a crop are expanded, or are likely to expand within a day or two of each other, they should be impregnated. Keep the plants healthy by frequent sprinklings in fine weather, and by closing early; by such means insects will be kept in check, as they but rarely ever attack thriving plants. *Nasturtiums*, sow seed at the foot of a fence, or wall, or any other such place where the plants can do no injury by their rapid growth. *Peas*, the early sowings to be well sticked and sow again as soon as the last is fairly above ground. *Savoy*, sow for a late crop. *Spinach*, sow the Round-seeded, and thin out the early-sown to six inches apart. *Tomatoes*, harden off in a cold frame, to be fit to plant out in the middle of May. *Turnips*, sprinkle soot over the young plants, to prevent their destruction by the fly. *Vegetable Marrow*, sow seeds, and get plants forward for planting out. See that slugs do not destroy the crops as they make their appearance above ground. Stir the surface of the soil among all growing crops, to prevent the growth of weeds, and to keep the soil porous.

FLOWER GARDEN.

The herbaceous ground to be well cleaned, and neatly raked over; all vacancies to be filled up from the reserve ground, or by sowing annuals in the intermediate spaces. Proceed with the *planting* of hardy climbers against walls, trellises, &c. Select some of the more showy species—as Bignonia, Caprifolium, Clematis, Tecoma, Wistaria, &c., and some of the strong-growing Noisette, evergreen, and hybrid climbing Roses to be blended amongst them if it is desirable to have some disagreeable object hidden from the view. Plant Hollyhocks for late blooming; sow seeds. Several species of the Gladioli may be planted in the flower-beds or borders. Part the roots of *Œnothera macrocarpa*, or by-and-by cuttings of the shoots, when about three inches long, can be made; they soon root if put in a little heat.

FRUIT GARDEN.

Attend carefully to the protection of fruit blossoms. *Raspberries*, top dress and stake; remove all superfluous suckers; cut down the double-bearing; draw away all suckers, leaving but two, or at most three, to a stool, and top dress them. *Strawberries*, weed and top dress.

GREENHOUSE AND CONSERVATORY.

Camellias, when making wood, to be shaded during very bright sunshine; a warm, moist atmosphere from 55° to 65° to be kept up night and day with air, to produce short-jointed wood. Put *stakes* in due time to Calceolarias, Cinerarias, Pelargoniums, &c. Some of the more hardy and woody plants may be removed to a cold pit, to make more room for the softwooded plants when they are staked out.

PITS AND FRAMES.

These will require daily and frequently hourly attention—propagating, pricking out, syringing, shading, potting, and hardening off for some time until a sufficient stock for bedding out and pot culture will be provided. *Propagate* plenty of Heliotropes, Aloysias, and the sweet-smelling Pelargoniums. Put in a stock of Chrysanthemum cuttings for autumn display. Sow a general stock of annuals, Stocks, Asters, Mignonette, &c., without further delay.

W. Keane.

BEDDING VERBENAS.

I was on my way to her Grace the Duchess of Sutherland, the Mistress of the Robes, to see if I could get a sight of the royal mauve dress which was worn by the Princess Alice at one of the drawing-rooms last March, when I was met by somebody, who, for the sake of somebody else, advised me to pull up just where I was, to remain quiet for a few weeks! and then to see if I could not succeed in getting a sight of a very different shade of mauve which Her Royal Highness was to wear soon on some grand occasion, "for if I understand you rightly," said the somebody, "the latter will look much in the way you describe the colour of the new Verbena which they called after your patron colourist, if you have no objections to allude to the Hon. Lady Middleton in that style." "Very well," said I, for what else could I say?

Meantime you will probably recollect that it was proposed and resolved on at the same time, the time I met that same body, that among flowers we should have three degrees of mauve colour—a deep, a light, and a lighter shade. That settled, saved me from troubling the Mistress of the Robes.

The dress alluded to must have been of the deeper

shade, as it was said to have been relieved with bands of white silk. The colours of the wild blue Violet, and of *Géant des Batailles* Verbena mixed in equal quantities should give that deep mauve. Lilac and lavender, the colour of Princess Alice's dress at the confirmation of Prince Alfred, the other day, make the lightest shade of mauve, and that is as near as possible to the colour of the new mauve Verbena called *Lady Middleton*, which will probably have a greater run than any Verbena ever had before.

Suppose, therefore, we take a run ourselves through the whole complement of colours in all the Verbenas, and show the rest of the world which are really the best kinds to make beds of out of all the different colours.

Teucrioides, with upright spikes of white flowers was the strongest sweet-scented of the whole family. *Lady Middleton* Verbena is the sweetest of them I ever knew, without being strong-scented. And *Melindris*, the original kind, taking it all in all, is still very superior, in my eye, and to my fancy, to all other Verbenas whatsoever. *Robinson's Defiance* is still the favourite scarlet. *Géant des Batailles*, the most approved dark crimson. *Mrs. Holford* is still the favourite among the whites. *Purple King*, the universal favourite of that colour. *St. Margaret*, though not a true pink, is the one most adopted by the best planters for their pink beds, the real true pink in Verbenas and Geraniums being still a very poor thin colour, so to speak. *Standard Bearer*, which made a great impression the first season, as the finest purplish-blue, was generally discarded the moment *Lady Palmerston* opened the ball, and her ladyship will probably be "done for" by *Leviathan*, after another season's experience. The striped *Verbena pulchella*, called *Empress Elizabeth* and *Maonetti*, has now, at last, met with a match to pair with—the new scarlet-striped kind which came out last year.

To get a new strain of Verbenas, there are two modes open to us, and two only. That is to say, plant these two varieties of Verbena *pulchella* along with Verbena *melindris*, or any dwarf sort or sorts with good colours and bedding qualities. Also, plant *Verbena venosa*, an upright growing sort, with clean, clear, pure scarlet kinds of good habit, and let no other Verbena be near to either of the two experiments. *Venosa* certainly chance crossed with me once, but the seedling was frightful, and I lost it, because all eyes were against it but my own, before the breed could be pushed further. *Pulchella* was a sporting kind from the beginning, but that is not against it, if it will cross with the breed of *Melindris* on the male or female side.

The best arranged catalogue of Verbenas anywhere is that of Mr. Scott, of the Merriott Nurseries, Crewkerne, Somerset; and he is probably the greatest grower of them. I have tested his degrees of merit for them for the last seven years against the public decision round London, and my own experience of the best ways of arranging them in flower-beds, and found them (his degrees) to match as nearly as the two striped kinds of *Verbena pulchella*. I shall, therefore, take the praise and all the blame of the following selections out of all the shades which he indicates in the said catalogue of the present season, and I shall saddle him with the responsibility of the way the colours run from end to end, or from 1 to 22, which are the numbers of shades. The names of the colours are plain enough; but *carmine* is a name which some few do not understand. It is a colour made of pink, red, and purple, as in many of the common red Ten-week Stocks.

The first shade of Verbenas is—

Red and Carmine.—*General Simpson* is the best of that class. *Lord Clyde* is nearly, if not quite, as good as *General Simpson*; and *Evening Star*, with its soft yellow eye, is the next nearest in merit.

Section 2. Vermilion—That is, a little orange, or yolk of egg, mixed with a good quantity of crimson; and the best of that peculiar crimson is *Brillante de Vaise* and *Consort*, two of equal merit; and *St. Margaret* the next best.

Sect. 3. Crimson.—*Géant des Batailles* (dark), *Indian Chief* (darker), and *Lord Elgin* (darkest), the three best; *Conspicua* and *Il Trovatore* next; and *Stella* and *Crimson King* next.

Sect. 4. Crimson-scarlet.—A very rich class, of which *Crimson Bedder*, *Prince of Wales*, *John Scott*, and *Sir Joseph Paxton* are running shades of the first water. The well-known *Chauverii* is the next shade in this class; and *Prince Frederick William* with *Mons. Nardy* are equally good, and newer.

Sect. 5. Orange-scarlet.—*Defiance* or *Robinson's Defiance* is the universal favourite in this class, and is in reality and in keeping "properties" the very best of them all for large beds. But believe me *Melindris* is just as good for smaller beds, and for the front of a ribbon-border would smash *Defiance* to jelly. Pity it is a very delicate kind, however. *Eclipse*, *King of Scarlets*, and *Magnet* are the next best in that bright-blooming section.

Sect. 6. Light Scarlet.—*Lord Raglan* is the best in this small class, to which belong *Islington Rival*, *Madame Schmidt*, and *National*.

Sect. 7. Purples.—*King of Purples*, alias *Purple King*, is still the best purple bedder; but *Manteau Evêque*, or, as we say in England, *Bishop's Purple*, and *Madam Turner* are both better pot plants. *Matchless* is as good as *Purple King*, and *Rival André* is a great improvement on the old reddish-purple *André*.

Sect. 8. Rosy-purple.—*Caliban* is the best bedder in this section (a shaded purple); *Comet of* 1858 and *Lady Poulett* the next best; *Loveliness* and *Surpasse Loveliness* are equally good; and *Earl Shaftesbury* the next.

Sect. 9. Plum-coloured Purples.—Mr. Breeze added two very good ones to this rare colour last year—*Miss Breeze* and *Dentoniensis*; and *Field Marshal* is equally good.

Sect. 10. Violet-purples.—This is the section to look to for the royal mauve colour. *Duke of Cambridge* is the best bedder of them; and *Prince Edward* and *Prince of Oude* the next best.

Sect. 11. Bluish-purples.—From this section we shall some day obtain a really blue bedder at last. *True Blue* is now the nearest to our anticipation in that respect. *Leviathan* and *Lady Palmerston* are the next best. *Grand Bouquet* is not much behind them; and *Blue Magnifique* is the next. But if *Standard Bearer* were a good grower we should not pass it.

Sect. 12. Lavenders.—*Queen of Lavenders* is the only good one in this section. But *Lady Middleton* must be placed here until we have a section for light mauve, and it is very probable *Lady Middleton* will stand at the head of the new section for a generation; for it is difficult to conceive how it can be improved upon.

Sect. 13. Lilacs.—True lilac is just as scarce among flowers as true mauve; *Beatrice*, *Fair Maid*, and *Geraldi* being all the lilacs we have in Verbenas, and the *Fair Maid* ought to carry the palm of merit.

Sect. 14. True Rose.—Here comes the bone of picking and bickering among colourists; and what is a pink, or a rose, or a red, in bedding plants will be the first turn of the battle. The *Captain* will be red as a Rose at the first charge, and if he is in danger of being tilted over he will turn as pale as a Pink. What the next turn will be must be determined by *Rosy Gem*, *South-western*, *Madam Large*, *Rosalin*, and *Rose of Castille*, the five greatest beauties in this beautiful group, all of them first-rate bedders, and every one of them stood the burning sun of last summer without a streak or a stain.

Sect. 15. Light-rose.—*Grand Rose* is the only good one here.

Sect. 16. Rosy-pink or Cerise.—As my *Victoria Rose*, and Mr. Kinghorn's *Christine* are among Gera-

niums, *Mrs. Maclean* and *Cerise* are the only good ones in this shade.

Sect. 17. Blush.—A lighter tint than *Pudibundus*, the blush from bashfulness. *Lovely Gem* and *Mrs. White* are the two best blush-coloured.

Sect. 18. Pink White or French White, or the lightest degree of Blush.—A lovely group rich as the *Albas* are among the old French Roses. *Admiral Lyons, Madonna*, and *Venus* are the three best of them, and *Mrs. Beecher* the next best. The four have crimson eyes, I am sorry to say; but all the eyes of all Verbenas want the "philter in the phiz" yet.

Sect. 19. Pure Whites.—All white flowers ought to be used in the modern flower garden in such a manner as to throw additional light, so to speak, on the rest of the colours, not for the eye to rest on, but the white to relieve it, as it were. When the eye wants relief that way, one of two things is self-evident: the colours are wrongly placed, or the eye is untutored. *Mrs. Holford* is still the best white for large beds, and for the middle distance in ribboning, but *Snowflake* is better for small beds and for rows in front of *Purple King*, or *King of Purples*; and for cottage flower-beds *L'Argentine* and *Mrs. Hosier Williams* are the best, because, with equally good flower, they are of a more dwarf and manageable habit for sober folks, and match well in opposite beds.

Sect. 20. Salmon-rose.—None of this colour that I know stand the sun in beds. I hand them over to Mr. Fish to be shaded in the shadow of his mantle. The sorts being — *Ivanhoe, Julie, Magnificent*, and *Miss Whibley*.

Sect. 21. Muddled Sorts, *alias* Mottled.—My blood boils at the idea of mottled beds, and I would hand over all mottled Verbenas to the care and protection of those who have tried to catch both ends of the rainbow. *Cendrillon, Novelty, Parfum Madeline, Requisite*, and *Zoe*, are all more or less mottled, and very pretty in pots out of the sun.

Sect. 22. Striped Sorts.—Here both ends meet. The extreme limits of *Verbena melindris*, and all the kinds with which it has crossed in its generations, and the beginning of the line lineal from the very different species, or kind, called *pulchella*. The best and the only two kinds which belong to *pulchella* are *Maonetti* and *Maonetti coccinea*, or, what is better, *Empress Elizabeth*, purple striped; and *Empress Elizabeth*, scarlet striped. Of those which belong to the *Melindris* line, the best striped are *Striped Perfection* and *Madame Jourdier*; and the next best are *Madame Legras* and *Madame Lemonier*.

To make a clean breast of it, I have been preparing for this selected list of Verbenas since the beginning of 1852, till the first frost of last October; and the kind of assistance which I should covet for the future, in order to keep the thing up to the level of the fashion, would be, that new kinds should be compared with the best in these sections, each tint, or shade, or colour, in its own section. The half of the world is not yet up to one-half of the beauty and richness of the dark purples, violets, and blue purples for pot plants, and the other half train their pot Verbenas to their ruin; and to go right round the Verbenas, allow me to tell of the summer of 1831, when I travelled 3000 miles in England looking into the best gardens; but there was not what you might call a regular Verbena-bed then in all England, nor a Petunia-bed, nor a Calceolaria-bed.

The bedding Verbenas flowered first in England, the Petunias in Ireland, and the Calceolarias in Scotland. The best bedding system then in England was at Dropmore; the best collection of Geraniums at Sir Richard Hoare's, near Bath; the best collection of bulbs, not botanically, was at Wentworth House, in Yorkshire; the best orangery near to where Captain Hornby now resides, just his Knowsley Cottage and Prescot; the best Pines were at Hagley; and the best collection of herbaceous and rare botanical hardy plants, on sale, was at the Epsom Nursery; at Mr. Wheeler's, of Warminster, was the next place to look for rarities out of London; and for rare bulbs one would need to send all the way to Mr. Young, of Taunton, who with Mr. Tate, of Sloane Street, London, was the only public man in England, who could discourse practically on bulbs in general; and the only railroad was that between Liverpool and Manchester. Therefore, no wonder that I should place very little value on the opinions of those who follow out landscape gardening entirely on the plans and principles of the generations which practised and formed their models before that time. D. Beaton.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(*Continued from page* 20.)

THE PIG.

The keeping of a pig ought at all times to form a part of the domestic economy; and with the offal of a garden and such things as the waste or kitchen-waste of a dwelling-house, a pig may often be kept at very little expense; and in the case before us two or three pigs may usually be kept at all times, as the fattening of pigs is perhaps the easiest and most satisfactory of all animal feeding. Assuming, therefore, that the piggery forms a part of the yard before described as being occupied by the cow as well, it may be proper here to say that the pig-house need not be a large structure. If built of brick, as we suppose it to be, a building four feet square inside will be large enough for two or three pigs; but it would be better to have two such pig-houses together, with each a small yard in front of them, which yard need not be more than eight feet by four, or the whole space occupied by the two pig-houses and their yards might be thirteen feet by ten feet; and the height of the pig-house need in no case exceed four feet, except at the ridge, perhaps. Of course, larger dimensions will be wanted where a greater number of pigs are kept; but as we expect the occupiers of a two-acre allotment will seldom have more than two pigs fattening and two others in store use at one time, the size above given will be ample, as it is expected the growing pigs will have the privilege of being turned out in the "farmyard" occasionally for a run.

VARIETIES OF PIGS.

Like most useful animals as well as birds, the breeds of pigs have wonderfully improved of late years. The long-faced, gaunt-looking, Irish hog, which some thirty years back used to be imported extensively into the west of England, has been long ago superseded by a more useful animal; and the Royal and other agricultural societies have done much at their shows to encourage the breed of a useful class of fast-growing and quick-fatting animals; and by judicious breeding and crossing, good useful pigs are to be met with in most counties; and occasionally various breeds may be met with in close neighbourhood to each other. A brief notice of some of these may be of service in enabling the amateur to choose those most suited to his particular wants.

Cheshire breed.—This is a large pig, generally white and with long hair, and when fatted often attains an enormous size. It is not at all adapted for killing as a porker, but is especially adapted for bacon, and it seldom attains a full size under eighteen months or two years old.

Berkshire breed.—This is decidedly a great improvement on the one last named, fattening at an earlier age, and being in many other respects a superior animal. In colour it is usually a sort of a sandy white with large spots scattered over its body; legs short, and considerable depth of body; ears pendent like the Cheshire hog, but

the bone is much smaller, and the animal on the whole more gentle. To the amateur who may wish to have his bacon pigs of a pure breed we would recommend this as the most suitable; but there are some crosses to be mentioned below which embrace the character of both porkers and bacon pigs in the same animal.

Neapolitan.—These are invariably black, with little or no hair; and though they fatten rapidly and at an early age, they are bad breeders; and they are far from being favourites except amongst those amateur feeders who wish to have a something out of the common way.

Chinese.—This is the parent breed of the small kind of porker which supply our markets with nice, useful, well-fed animals from 80 to 150 lbs., and often good pigs of 50 lbs. may be met with. Although crossed with other small breeds, the features of the Chinese kind predominate. Very short head, with eyes somewhat wide apart; ears erect; body short, and legs medium; colour both black and white, but seldom a mixture of the two. For feeding to kill as porkers this breed is the best that can be had; but there are so many cross breeds having equally good qualities, and the original being difficult to be met with pure, the amateur had better select a good stock from some one well versed in these matters. One of the best breeds in that way is the one next described.

Hertfordshire.—This is a small breed, and having a facility to fatten at a very early age—the bone being very small and the disposition quiet—that I have heard a farmer declare he could fatten one well at 50 lbs., and another of the same litter at six times that weight, without in either case it being apparent that any unusual means had been taken. They are generally white, with rather long, fine hair, and the skin exceedingly thin. The proximity of this county to London and the demand there is for small pork have, no doubt, led to the improved breed here described; but there are, no doubt, other breeds or crosses in various places equally good.

GENERAL DIRECTIONS OF THE BUYING AND FEEDING OF PIGS.

In a general way it will be best to have two pigs at a time, or more if required. When together they often thrive better, but this is not always the case: but those merely kept to eat up the offal or secondary qualities of food ought to be kept apart from those put up to fatten. But as all kinds will require a certain time for the latter purpose, it would be better, as before observed, to keep them apart. And in buying a pig, due consideration ought to be given to the time of year it is wanted for use. Bacon pigs are invariably killed in the winter months—say from November to March—but porkers have a longer period allotted to their use; nevertheless, they do not answer so well in summer. It would, therefore, be better to buy pigs of the larger breed to keep over the summer to kill in winter when ready for bacon; and, if need be, some time about August one or two of the smaller kinds might be brought to succeed the larger ones, as there ought always to be one or two to eat up the inferior food. These store pigs ought to have the run of the yard, as many kinds of garden refuse must necessarily be thrown in there—they will have the opportunity of looking it over, and eating a portion or all of it; and as growth and not fattening is what is wanted from them, they will do pretty well on this, with kitchen-wash and a little pollard. Their general appearance, or improvement, will give unmistakeable tokens of their good or indifferent doing. Of course, there must be one or more troughs for their food. If only one, it must have a partition to hold liquid apart from the more solid food. Those put up to fatten may at first have a little better food, more meal amongst it, and the animals may have less liberty; in fact, as they begin to fatten they will not want it, as repose and quietness tend materially to hasten that operation. Barley meal is the best of all food; and if there be any quantity of small and useless Potatoes let them be washed and boiled, and mix some Barley meal with the whole, adding, if it is to be had, any good wash from the kitchen that may not be wanted elsewhere. The proportion of Barley meal to that of Potatoes need not be large at first, but may be increased gradually as the animal fattens. Feed about four times a-day, but give no more than he will eat clean up (offensive fragments, of course, excepted): nevertheless, give him plenty—practice will soon enable any one to judge this. Meal from Indian Corn, or Rye, or Pea, may be used instead of Barley, but the last named is the sweetest. Towards the last the food must be almost all of this meal; and if there be any spare milk it will also be serviceable either now or at any former period. Let the animal be killed, if possible, in cold weather; and whether for pork or bacon, let it hang until it is quite cold, after which it may be cut up. J. Robson.

(*To be continued.*)

PLANTS IN BED-ROOMS AND SICK-ROOMS.

"What nonsense and absurdity to talk of such things! None but sciolists and ignoramuses would ever recommend such a practice. Don't *we* know that pure uncontaminated air is essential to the healthy, and far more necessary to the sick? And don't we know that all plants vitiate the air in which they are grown, especially when that air is confined and not agitated by sunbeams? And have we not seen the very worst effects on patients from being allowed to inhale the sickly aroma of flowers? Talk of window-gardening under such circumstances, indeed. I would soon make short work of gardening and gardeners too, did I have my way with them."

Well, Miss Knowall, you are in a way this morning. You have pretty well made yourself short of breath, and would to a certainty have deprived me of the power of speech; only I am so used to you, that I know your bark is always so much worse than your bite, and that underneath all your railing there lurks a strong love of the beautiful in Nature after all, or why should you take so much care in fresh arranging, and giving fresh water every day to that bouquet of flowers that cousin ——, well, I will not say who, sends so often from the country? There, now, you are yourself again, and so we will talk the matter over quietly, and with profit I hope to both of us; and most likely we shall find that when the angles of prejudice are rubbed off, there will not after all be so much difference between us.

First of all, I thoroughly agree with you that pure air is the best security for health to the healthy, and the best medicine that can be given to the sick. Here there is no difference between us. We will take a step farther together, and conclude that the air of an apartment can only be kept pure when there is a direct communication between it and the pure air outside. Under general circumstances I prefer that air to be admitted by the window, and chiefly from the top of the window. You demur, and say that under certain circumstances you would prefer letting the fresh air in by the doorway. Well, here again, I so far agree with you. If there is a dirty puddle-hole, or a dunghill directly beneath that window, I would vote to keep it shut, and keep the apartment pure by admitting fresh air through the doorway and the chimney, more especially if that doorway communicated *directly*, or nearly so, with the external atmosphere. If the door of that apartment communicated with a long, close passage, with many other doors opening into it, and even the close, foul air from other parts of the house had access to that passage, no mere opening of the door of such an apartment would ever ventilate it so as to make it healthy for human beings, or for plants. Provided the pure air is secured, both will flourish, if the plants get a sufficiency of light and that peculiar temperature which suits them best.

I allow that to a very trifling extent plants will deteriorate the atmosphere of a bedroom at night, if that bedroom is almost hermetically closed; but why should it be shut up so close at night after being kept so airy all the day? The highest authority informs us, that even sick persons in bed will never suffer from the admission of fresh air provided there is no draught on them, and they are kept sufficiently warm—not broiled as if they were salamanders. Under such conditions a few pretty plants will never do any harm. Then think of the exhilirating influence they exercise during the day, in helping to purify the atmosphere

and in exciting the inmates with a larger supply of oxygen than they otherwise would have had. The health-giving air that might have been neglected will often be given, because there the plants are reminding us that they too are needing it. Then think of the powerful influence for good they exercise by the laws of change and association even upon the healthy, and far more upon the invalid, to whom the monotony of everything around him becomes next to unbearable. Who has not noticed the strong sympathy for plants evinced by the patients in the wards of our hospitals? That man with the tears coursing down his pale cheeks as almost unconsciously he fingers the leaves of that Primrose, is finding that to him it is more than a volume of reminiscences of old times, when he was an innocent, healthy, roystering boy on the village green. Had I the power and the means, I would like to see pretty plants in pots and cut flowers in the wards of our hospitals, as well as in private sick-rooms, and these I would have kept clean and in excellent order; and if not changed, fresh arranged every day, so that even they would never weary by sameness.

I agree so far with Miss Knowall, that every plant that is disagreeable or injurious, or even thought to be so, should be instantly removed from bed-rooms and sick-rooms. Even what is called "fancy" must be attended to. What is mere fancy to me may be thorough reality to my brother or sister. I have known instances in which strongminded persons in other respects could not come near Heliotropes, Mignonette, Jonquils, or even the sweet Daphnes. Generally speaking, all strong-scented plants should be excluded from bed-rooms, especially at night, if the atmosphere is at all close. Beauty in form and colour should be more attended to than scent. Snowdrops, Crocuses, Tulips, Myrtles, and cut-leaved Geraniums, &c., in winter; Myrtles, Geraniums, Calceolarias, Fuchsias, Balsams, &c., in summer, would furnish a plentiful supply, and many other plants that had no strong scent, but which were very beautiful. In cut flowers the vases might be arranged differently, so that the sweet-smelling and strong-scented might be removed at night.

To corroborate such ideas previously urged at greater length, allow me to insert a short extract from a small, but one of the most practical and useful books I ever read—"Notes on Nursing, by Florence Nightingale." No higher authority on such a subject it would be possible to have. The price of the book is not mentioned; but it is published by Harrison, of Pall Mall. Were its eighty pages circulated largely in a cheap form it would do a vast deal of good, and place the country, if possible, under a still larger debt of gratitude to the strongminded amiable authoress, whose name will ever be associated with all that is truly noble, heroic, and humane. At page 33, when speaking of variety as a means of recovery, she says, "The effects in sickness of beautiful objects, of variety of objects, and especially of brilliancy of colour, are hardly at all appreciated. . . . . I have seen in fevers (and felt when I was in a fever myself), the most acute sufferings produced from the patient not being able to see out of window, and the knots in the wood being the only view. I shall never forget the rapture of fever-patients over a bunch of bright-coloured flowers. I remember (in my own case) a nosegay of wild flowers being sent me, and from that moment recovery becoming more rapid. People say the effect is only on the mind: it is no such thing, the effect is on the body too. Little as we know about the way in which we are affected by form and light, we do know this, that they have an actual physical effect. . . . . The folly and ignorance which reign too often supreme over the sick-room cannot be better exemplified than by this: While the nurse will leave the patient stewing in a corrupting atmosphere, the best ingredient of which is carbonic acid, she will deny him, on the plea of unhealthiness, a glass of cut flowers or a growing plant. Now no one ever saw "overcrowding" by plants in a room or ward, and the carbonic acid they give off at night would not poison a fly—nay, in overcrowded rooms they actually absorb carbonic acid and give off oxygen. Cut flowers also decompose water and produce oxygen gas. It is true there are certain flowers—Lilies, for example—the smell of which is said to depress the nervous system. These are easily known and can be avoided."

Let us then hear no more of the danger of beautiful flowers, or plants, in bed-rooms or sick-rooms, if attended to *as they ought to be*. The last clause I put in italics advisedly, for the whole pith of the matter lies here. If they are neglected, as they frequently are, then I would join heart and hand with our friend Knowall, and make a clear riddance of them.

I have not seldom met with instances in which what would otherwise have been a source of elevated pleasure, was turned into a thorough nuisance. For instance: Here is a vase of cut flowers on the table, the tops of which are not absolutely unsightly, and yet the aroma from the vessel could scarcely be equalled by a cart-load of hot-fermenting horsedung. The sprigs have stood in the same water eight or ten days, and the pieces of plants have never been removed all that time; and the consequence is, that most of what is in the water, and the water itself, are a mass of corrupting unwholesomeness. I have known ladies keep a bunch of cut flowers in prime order for six weeks; but every day fresh water was given, and with a sharp knife a small piece was cut off the end of each sprig-stalk, so that the water had a fresh piece to act upon, and thus not one stalk was ever allowed to go with a decaying end into the water. Something of this must be done, if a jug of cut flowers is to have no associations but the cheering and the invigorating.

Again: We go into a chamber where an old friend is confined to bed by illness. His few pet plants in the window are to him now a source of sorrowing regret. From his bed he can see the yellow leaves hanging on them. He knows by the curled leaves that insects are making them their feeding-ground, and all for want of the air and attention that would have been good for him as well as for them. Anything but kind attention was never thought of, yet downright cruelty was inflicted. Personal suffering and confinement are bad enough, but these are greatly aggravated when we see or know that some favourite objects are neglected when we cannot attend to them ourselves. No doubt the desire not to disturb the invalid was the only reason why even dust was allowed to collect undisturbed on window-panes, window-curtains, window-sill, and the leaves of what were once pretty, flourishing plants. It never crossed the thinking, that what was so hurtful to the plants could not be very invigorating to the patient. The condition of a plant in such a room will tell a true tale as to right or wrong management, if we only listen to what it clearly says to us. Ah! I see you have bent your ear to catch their gentle utterances, and I know exactly what you will do. You will not be a jot less kind, not a whit less anxious not to disturb; but, choosing your time, you will quietly remove that dusty window-curtain, to part with its dust elsewhere. You will take the plants and all their appurtenances to the kitchen or some out-house, and there, after removing all the dust you can by shaking and brushing with a soft brush, you will place a cloth firmly on the top of the pot, to prevent the earth coming out, or water getting in, and placing one hand firmly across it, you will draw the head of the plant several times through a pail or tub of water, at a temperature at from 50° to 60°. Then draw a sponge over the leaves of each plant, and when all are gone over and every bit of yellow leaf removed, draw the head a second time through clean water, and you will be gratified to notice how clean and nice they look. Then give the pots and the saucers a scrub to make them all look nice, and allow the plants to stand until the pots and leaves have got dry again. Meanwhile, get the dust from the windows with a damp cloth, and then rub the panes of glass afterwards with a dry one; and by the time that is done the plants will be so dry as to retain no marks of their repeated bathings but their fresh clean appearance. To keep them healthy afterwards, a little of the same process may be required; but, chiefly, opportunities should be taken when the room is hot enough to give air by the window, and yet prevent draught by shutting the door. The whole may be done in less time than I have written this paragraph; and you will be repaid with a look of satisfaction and pleasure, such as all your previous care and medicine-giving never could elicit. In such cases such little matters are anything but trifles.

Once more, even at the risk of Miss Knowall telling me that all I have said and am saying is in her favour. Some years ago I found myself, by invitation, one of a very pleasant social evening party. The fact of having something to do with flowers constituted a link of sympathy between myself and the mistress of the establishment. With little space to indulge the feeling, there was a thorough enthusiasm for everything of a plant nature that was at all beautiful. Some people find great difficulty in filling their flower garden; but in the case of this lady the difficulty was to find a place for a fresh acquisition. Inside it was the same as respects pot plants—kitchen windows, parlour windows, bed-room windows, all were full; and generally, even in winter, the appearance of the plants would have been no disgrace to a professional. If a plant got unsightly, or touched with frost, the lady either doctored it and made it all right, or it was sent adrift, or put into the hospital until it was fit to be seen

again. With her manifold duties it was wonderful how the plants were all attended to, and almost solely by herself. It never could have been done had not the labour been a thorough enjoyment—a labour of love. That night was the first time she had been in the large family parlour, after a somewhat serious illness. The room had been well aired and heated for many days previously. Happy faces beamed upon her there, rendered all the more bright by the reflection of the large fire that flamed and crackled in this huge fireplace. One thing alone cast a sombre shade over the whole. A few months before a large flower-stand, with beautiful plants, stood near the window; now they were next to a perfect wreck. Some pots resembled a morass; others had the soil as dry as baked dust; some plants were covered with yellow leaves from top to bottom; others, from frost or gout, were hanging over the pots in a state of decay. Nothing could be more out of place, with what otherwise would have been a happy scene. The only excuse was that no one had authority to remove what was unsightly. The sight of them made everything else tinted with gloom and melancholy. I noticed more then the shade of deep disappointment that the sight of her once-valued plants produced on that lady's features. Need I add that a renewed illness was the result of these few hours in the parlour? She always said the sad plight of her plants did it all. Before she entered that parlour again the plant-stand was everything she could wish, and from that day she rapidly improved. One cause of previous comparative convalescence after that party she always believed to be the insisting on all her plants being brought to her bed-room every day, so that every one received what it wanted by her own directions and superintendence. No doubt the pleasure of such an employment—the break in upon the dreary monotony—did much. How often do our readers meet with flower-stands in houses in winter and spring whose absence would be a happy riddance, and that, too, in instances where no such excuses as in the above case could be given.

On the whole, then, from many such facts and circumstances, and not mere theoretical reasoning, my impression is that clean, healthy, beautiful plants in rooms—even bed-rooms and sick-rooms—and more especially in towns, have the tendency to promote the health and cheerfulness of the human inmates; and that dirty, diseased, languishing plants have just as unpleasant opposite effects. Do not suppose, however, that I would advocate placing plants and cut flowers in abundance in rooms in the country, with the principal rooms looking upon rich parterres. I know that this is frequently done to a great extent—until it threatens to be next to a mania, but in such circumstances having more of the barbaric and the totally unfit than the refined and the suitable about it. This is a separate question from the one alluded to, and which is well worthy the consideration of our readers.

R. Fish.

CULTURE OF THE GLOBE AMARANTH.

(Gomphrena globosa.)

"F. P. C." will be obliged by being informed how to manage the *Globe Amaranth*. The seed was sown the last week in March, and the pot placed in a hotbed. When the seedlings are fit to transplant, what soil will they require? Should they be kept in a high temperature? and will they require frequent repotting?

[You did quite right in sowing these general favourites during the last week of March in a hotbed. Most likely by the time this is seen the plants will be making their appearance above the soil. If the hotbed were very warm, and the pot containing the seedlings were plunged to the rim, it would be advisable to elevate the pot out of the bed for half its height, as, though the plant likes heat at the earlier stages, too much bottom heat is injurious to the roots; in fact, the latter should not be much warmer than the atmosphere in which the plants are grown. If the plants are at all thick, they must be watered with care when young and tender, either by dipping the pot in water up nearly to the rim, and allowing moisture to be given by absorption from the hole in the bottom, or by wetting the surface with water, poured on a piece of crock or shell held close to the side of the pot, so that the tops of the little plants are not drenched as by a rose watering. The plants are comparatively hardy, and will do without this extra care; but when watered carelessly with a rose, we have known the young things to shank off at the bottom, or the tops scorched when exposed to the sun. This preliminary got over, the plants will require afterwards treatment somewhat intermediate between a Cockscomb and a Balsam; the temperature need not be so high as that required for the former, and rather more than what is needed for the latter. Two modes of treatment will each answer well.

First. As soon as the plants are half an inch in height, prick or pot them off; four round the sides of a four-inch pot. Use light, rich, sandy soil, such as a mixture of leaf mould, loam, and silver sand, with a little peat. For want of these we have scraped off a little of the surface soil in ridged-up ground in the kitchen garden, when dry, and mixed it with a little sand. This will grow all our common plants, except those with hair-like roots—as the Heath, Epacris, &c. Let the soil be warmed and aired before using. In watering as above noticed, the water should range between 70° and 80°. As soon as the little plants are pricked off, transfer them to the bed again, and half plunge the pots. Give air when the weather will permit. If there is heat enough a little left on all night will do them good. By the time the plants are two or three inches in height, shift them separately into four-inch pots and place them again in the bed. When the pots are full of roots, transfer the plants to six-inch pots; and if too tall for the bed when potted a week or a fortnight, transfer the plants to a warm greenhouse or a cold pit, which you can keep warm after the middle or end of June by regulating the air. In these six-inch pots you may have nice, compact, early-flowering plants in August and onwards, which will be an ornament to a greenhouse, a window, or anywhere affording a little protection. By this mode nothing is done in the way of stopping or training. With the exception of the shifting and the watering, and air giving, the plants are just allowed to grow as they like, and they will naturally grow rather gracefully. If you give another shift into eight or nine-inch pots, you will defer the period of dense blooming; and it should be kept in mind, that in common greenhouses they seldom do much good after the middle of October. In a window in a warm room small plants will continue healthy some time longer. Until the end of June the plants should be kept in an average temperature not below 55° at night, nor below 70° during the day, allowing a rise of from 5° to 10° more in sunshine.

Second. When very fine large specimens are desired. Sow at latest in the beginning of March. Prick off and pot as above described, but as soon as the four-inch pot is nearly filled with roots, nip out the points of the little shoots. This will cause two or more shoots to come instead of one; and as soon as they can be perceived coming, transfer the plants to a six-inch pot, and place in the hotbed again. When that pot is nearly full of roots, repeat the nipping-out-of-the-centre-of-the-shoot process; the point of a penknife will be best. When fresh shoots are breaking, repot again into eight-inch pots and place again in the hotbed to encourage free growth. By this means a very compact ball-like plant, with flowers gemmed all over it, will be produced. If the specimen is wanted to be very fine, give the plant another shift into a twelve-inch pot, and encourage root growth by keeping still in the hotbed partly plunged, but with a free course of air over the head. In a fortnight raise the plant out of the bed, but still keep it warmer than in a greenhouse. Fine specimens will thus be made for September and October. Under such a mode the drainage must be well attended to, and pieces of charcoal and bits of brick and lime rubbish in the compost will help to keep it open and healthy. Water all along, and especially when the plant is flowering in a cooler place than it grew in, must be genial and warm. The period of flowering in a cool greenhouse will be prolonged by this attention to the warmth of the water. We have several times made very pretty symmetrical objects of these plants by this last mode of training, and consider it worth the attention of those to whom the work would be a recreation or pleasure. For general decorative purposes, the first easy mode and growing in six-inch pots will be most useful and convenient.]

NEW BOOK.

The Culture of Fruits and Vegetables. *By George Glenny.* London: Houlston & Wright.

It is unnecessary to say more of this work than that it is prepared in Mr. Glenny's usual style, with which the public are by this time familiar. The instructions for the cultivation of fruits and flowers, so far as they go, are sound and practical; and the book will be found a safe guide to those who may consult it.

GROWING ROSES NEAR LONDON.

Is there any chance of success in growing Roses near London, the neighbourhood of Hackney? I know no standards will flourish here long together; and am told no Roses of any sort will grow well if budded on the common Dog Rose, but that a few varieties—such as *Géant des Batailles* and *William Griffiths*—will answer well, provided they are budded below the ground on the Manetti stock or some other strong-growing Rose of the same habit. I should be much obliged by your informing me if this is likely to be correct; and, under such circumstances, if it would not be better to grow Roses on their own roots and not budded at all? I should feel much indebted if you would furnish me with a few hints respecting the treatment of common and hardy Roses (for I should attempt no others), how they should be pruned, and the kind of soil they prefer. My garden-beds are composed almost entirely of loam and peat, with little or no manure on account of the American plants. Perhaps you would have the kindness to state if you know any hardy sort of yellow Rose which would be likely to succeed?—A Lady.

[It is quite practicable to grow all kinds of strong Hybrid Perpetual Roses round London from Hackney to Highgate, then to Kensington and Fulham, then over the water, and at a like distance from St. Paul's right round, and back to Hackney again; the only conditions being deep-worked or rather trenched soil—say twenty inches deep, and the top soil to be still kept on the top and well mixed with very rotten dung, or with half dung and half of the road-scrapings of London in a perfectly dry state. At the Vauxhall Nursery we have seen Messrs. Milne & Co. in co. with the carman who clears that district of road dirt for the Road Commissioners. The man in co. was carting it into the nursery by tons, and multiplying them by tens and twenties, according to the state of the muck pies; and Messrs. Milne & Co. were laying it on their Rose-beds six inches thick all over, and two or three inches thick all over their best quarters and wall-borders. That dirt is from ground granite and London-fed animals. The next condition for the success of Roses in the London suburbs is that they be on their own roots, and be free-growing kinds, and not be pruned more than one-quarter so much as would keep them from going to the dogs on Dog-Rose stocks, or Manettis either. And the last condition is, that the Rose-beds or borders be mulched in summer, and soaked with water at least twice in June, July, and August. But any Londoner can go to the said Nursery, and learn ten times more than this from actual inspection of Roses on their own roots. The happy hit of burying the budded parts of Manetti stocks is to get Roses so worked to root on their own account from the edges of the worked parts—one of the best practical hits which Mr. Rivers, the godfather of many Roses, ever made. Manetti and Boursault root like Verbenas, and no Rose-grower should ever be without lots of them fresh and fresh. Then every bud of a new Rose will soon make a plant on these stocks; and by burying the worked parts the new Roses are on their own roots sooner than they could tell the tale of whether or not the Manetti or the Boursault would kill them, or make them better for being on them. Moss Roses and Cabbage Roses on their own roots in the vicinity of London require better soil than the Hybrids—say good Broccoli or Cauliflower soil—that is to say, if it is worked about six times deeper than we saw the plowing done at Camberwell this season with *five* horses in "a string," and two louts and a lad driving the team; that was across the way, not a gunshot from the Vauxhall Nursery! The plowing was from three to three inches and a half deep; the soil was black sand; and the bed below an impervious cake. The only hardy or very hardy yellow Rose that will bloom on very poor soil is *Rosa Harrisonii*, on its own roots of course, and treated like a Scotch Rose as to pruning—that is, never to let a knife near it for an age, but to nip off the top of any proud shoot when it is from six to nine inches long and no more.]

STOPPING LEAKS IN AN AQUARIUM.

As many persons besides "Elizabeth" have had much trouble to make their aquaria hold water, perhaps my experience may be of use to some of your readers. I have found red lead with gold size answer perfectly for a time, but it appears to be acted on by the water. I saw a receipt in The Cottage Gardener of pitch and gutta percha, but with no proper directions for its use, and could derive no benefit from it. Seeing your advice to try marine glue, I sent for some, and was told by the "chemist," who supplied it, that it was to be melted like common glue. I did not see how a substance that was to be dissolved in hot water was likely to stop cold, but, on trying it, found that water had no effect on it; heat would not melt it enough to enable me to spread it, nor would it take hold of the glass; but when cold peeled off easily. Believing it to be gutta percha and pitch, from its smell and colour, I mixed naptha with it when in a hot state, having melted it in a common glue-kettle—of course taking great care it was not set on fire—and found it made a nice paint-like substance, which has answered perfectly. Of course, the water should not be put in for a few days, and should be changed several times, to get rid of the naptha smell before the plants and animals are put in, as they might be injured by it.—J. R. Pearson, *Chilwell*.

ILLUSTRATED BOUQUET.

The last number of this beautiful drawing-room book, *Vol. II., Part VIII.*, opens with a plate (34th) of *Bignonia Chamberlaynii*, the best of all the yellow ones that have yet flowered in Europe; but, according to Mr. Skinner, not nearly such a beautiful thing as his *Tecoma velutina*, from Guatemala, of which it was said, lately, in The Cottage Gardener, that it would never bloom in a stove under an English sun—a prediction we presume to mean, that *T. velutina* is not likely to be a stove plant. *Bignonia Chirire* first flowered in a stove at Dropmore, about 1830; but never in a stove that we have heard of since, it being a hardy conservatory climber. All these peculiarities of the allied Bignonias are ably and very practically discussed under *B. Chamberlaynii*; and the common error of confusing *Tecoma radicans major*, of North America, with the Chinese *Tecoma grandiflora*, is pointed out by a full description of the two kinds in the plainest English. Plain practical rules for cultivation accompany all the plates.

Plate 35 represents a new seedling tree Pæony, called *Elizabeth* (Casoretti), "one of the finest yet introduced to British collections." Many years ago, the late Lord Mountnorris raised a cross very much like this continental seedling. At Arley Hall, near Kidderminster, we have seen that seedling in bloom, with three or four other kinds; and we think Mr. Linnæus Pope, of the Handsworth Nursery, near Birmingham, made drawings of them; but we never heard what became of them and other rare plants which were in that collection.

Plate 36 represents an extraordinary cross, called *Dianthus Verschaffeltii* (Verskafelti). The plant and the way of flowering, look like a Sweet William, and if you suppose a head of Sweet William to be made of the largest white florists' Pinks you ever saw, with all the edges frilled and toothed, and with a deep purple dash on the bottom of each division of the flower, the truss would be like this plate, and such a flower was certainly never seen before.

Plate 37 "is a magnificent addition to the Japan Pinks, derived from the same source as the beautiful *Dianthus Heddewigii*." There are four kinds of this magnificent flower represented, and called varieties of *Dianthus laciniatus*, from pure white through salmon, rose, carmine-crimson to deepest crimson, some single, some double, and some intermediate. The outlines of some of the petals remind you of the slashing sinuosities of the leaves of the Elkorn Ferns; the colours are inimitable, and the size altogether out of proportion to our ideas of any Dianthus.

Plate 38 introduces a new rival to the Chinese Chrysanthemums, or rather an intermediate link between them and the Zinnias,—in recent improved variations from *Pyrethrum roseum*, a hardy border-plant and blooming in the autumn. This has been made to sport from seeds in Germany, and three different improved kinds are here represented under the names *Atrosanguineum*, *Duchesse de Brabant*, and *Charles Ballet*. The flowers are larger than those of Zinnia, but much in that style, and inclining to be double after some more turns of the cross, or proper selections for seed-parents. It is not fifty years since the Dahlia occupied the same point of departure from the wild state as these Pyrethrums do at present, and if the plants will ripen seeds in England, Pyrethrum is likely to occupy as much of the attention of the British florist as even the Dahlia itself. There are seven or eight more kinds of this new class of flowers on sale; and if the whole were planted together on a cool, rich border, they would make a fine mass of bloom from the end of June till late in the autumn, and every seed should be saved to see how they might improve in our climate. We believe they are al perfectly hardy.

On the same plate is another German cross-bred *Lychnis*,

between *L. fulgens* and *L. Sieboldii*, and named *Haageana*. This, also, is hardy and a fine addition to the Lychnises. It is of a brilliant orange-scarlet colour. Altogether this part of the "Illustrated Bouquet" is very rich in novelties, and very useful in the practical directions.

CULTURE OF PERILLA NANKINENSIS.

Seeing several inquiries in The Cottage Gardener on the culture of Perilla, also Mr. Beaton's article on raising seedlings, I venture to offer my mite of experience these two seasons, the worth of which I leave to your better judgment. In March, 1859, I procured a packet of the seed, and being advertised as a hardy annual, I sowed it in 32-sized pots, half filled with drainage, with a compost of sandy soil and leaf mould; placed the pots in a cold pit, applying fire only when likely to be a sharp frost. I only filled the pots to within one inch of the top, gave a good watering, left it to drain for a time, then sowed seed, covered each with a pane of glass, and shaded from hot sun, which saves having to water often. The aspect of the pit is S.S.E. In about three weeks the seedlings made their appearance; and as soon as I could handle them they where pricked out in boxes in the same kind of compost, only a little rougher, and I finally planted them out in May, for the back row of a small border, a row of orange Calceolaria, next *Tom Thumb* Geranium, edged with Alyssum and *Lobelia speciosa*—two plants of Lobelia, and one of Alyssum alternately. The Alyssum was kept in proper bounds with the knife, and not by the shears, and I assure you this little border was very much admired.

I may add, that three kinds of dwarf Lobelia treated in the same manner have come up well, but the seedlings were rather longer in making their appearance than the Perilla.—A Young Hand, *South Salop*.

CUTTING POTATOES FOR PLANTING.

Our predictions about two months ago that Potatoes would be very dear this spring are verified. Allow us, therefore, a small space to inform your readers of our experience of the most successful and economical mode of cutting them to obtain the best of crops.

Small whole tubers may be safely planted to secure the best results, if, when the plants are up about three or four inches high—say at the end of May, the weakest shoots are pulled up, and reduced to only one, two, or at most three, which may be performed by pressing the plant with the left hand, and jerking off with the right hand from the mother set the superfluous off-shoots. We have thus grown from seedlings one year old, not larger than Peas, very fine tubers the second season after the seed had been sown. Larger ones are preferable for planting, but are not the cheapest; the crown sets of such should first be cut off with a good thickness, to be planted by themselves, and treated similarly when up as directed for the small whole ones, as this part of the Potato, without this expedient, always produces too superabundant a number of shoots, and, consequently, a weak and small progeny. The remaining part of the large-sized sets are best cut in halves from the upper part through the tail end, or otherwise into single eyes; those, however, will not require so much thinning, if any, when growing.

By adhering strictly to the above rules nearly all the produce will prove large, and more in measure than where this process of thinning is not resorted to.—A. Hardy & Son, *Seed Growers, &c., Maldon, Essex*.

GERMAN SUMMER STOCKS (*Mathiola annua*).

(*From J. Carter & Co.'s "Vade Mecum."*)

"Four sorts of Summer German Stock are now known.

"(*a*) Dwarf.—This has close, compact flowers, and is as well suited for grouping in the open air as for culture in pots.

"(*b*) Large-flowered.—This has likewise close, compact flowers, but the single blossoms are larger than the preceding; on account of its strong growth it is particularly adapted for growing in flower-beds, where it attains to an extraordinary perfection, and the stalks of the blossom reach to a considerable size.

"(*c*) New very Dwarf.—This is perfectly similar in blossom to the one mentioned under head (*a*), and is only distinguished from it by its exceedingly dwarf growth: it is, therefore, better suited as an edging round Stock-beds of previously mentioned sorts, or those which follow.

"(*d*) Branching or Pyramidal.—The blossoms of this are not so close nor compact, and may be used in the same manner as the *large-flowered*. This variety, on account of its branching habit, is better suited for bouquets than all the others previously mentioned.

"*Directions for Sowing.*—Sow in the early part of March in a cold bed, which must be filled up with vegetable earth mixed with one-sixth of river sand; when the mould has been smoothened, and the windows put on the cases, the distance from the earth to the windows must not be more than three or four inches, so that the rising plants may be as near as possible to the glass; the smoothened earth must be slightly slushed with water, and the seed then strewn, but in such a manner that the seeds are not too close together, say about two or three seeds on the square inch; after this, again carefully water, and then finely sifted earth of the same kind is sifted over it to the depth of about one-sixth of an inch; put on the windows, keep close, and if there is sun, shade must be given. In favourable weather the seeds germinate in four or five days, and when they are up, they must be thinned in order that the plants may not be long-legged; if they are aired, and there is a strong sun, shade must still be given until the plants have become so strong that more air may be given, and then shading may be totally dispensed with: when the slushing of the earth and the scattered seed has been well performed, it will not be necessary to water the young plants for three weeks; it is never done before it is observed that the humidity is exhausted, and then, if possible, on a morning upon which it is likely to be a bright day; even when they *are* watered, too much water must not be given at once, because it would run from the surface, as the earth is too dry to suck it in immediately; therefore the first time only a little water is given, that the top earth may draw it in; half an hour afterwards a second and heavier supply may be given. At latest at the end of April the plants, if so treated, will be so strong that they may be transplanted, either in groups in the open air, or as ornaments in pots with other plants: the Stock-plant can, if it be not weakened in the bed, but has only become a little hardened, receive five or six subsequent transplantings without serious injury. We would, therefore, always advise that the Stock be planted rather early and weak, because it grows up much more easily in this little, weak state, than to transplant it when it has become a large, strong plant, perhaps in the middle of May or later.

GERMAN AUTUMN STOCKS (*Mathiola intermedia*).

The Autumn Stock is likewise divided into different kinds: viz.—

"(*a*) Autumnal.—This species has the blossoms close to each other, the top and side-shoots blooming at the same time.

"(*b*) Autumnal Branching.—This species has the blossoms rather more loosely on the stalk.

"(*c*) Imperial.—These bloom several times in the year, and are like those described under (*a*); they differ from it in that the principal side-shoots bloom first, and then the top: it is said of this plant that with proper treatment it will last several years, and at length form itself into a small tree; the same may be said of (*a*) and (*b*) species, if cultivated in the same manner.

"(*d*) Large-flowered Imperial.—Is much like the preceding, only that the individual blossoms are larger. They require, according to their appropriation, a different time for sowing: if they are required for continuation-bloom in the beds of the Summer Stock, then they must be sown at the same time, must be treated like them and planted between them. When the Summer Stock has done blooming, it must be removed, that the Autumn Stock may spread itself out, as it requires more room for development; however, if the Autumn and Imperial Stocks are reared for pots, they must be treated like the Winter Stock, the description of which follows.

"WINTER OR QUEEN STOCK (*Mathiola incana*).

"Queen, with close sitting flowers.

"Queen, with blossoms rather spread out.

"Brompton, that do not branch out, and form only one stem, on which there is formed in the spring, as on the Stock Wallflower, one blossom-stalk. The Winter Stock, besides the last-mentioned species, developes a strong bush on a low stem, and presents at the time of blooming a splendid sight: it is principally applicable to ornament flower-beds to be placed before the windows, because it developes its flowers early in the spring. As

those with full flowers are most esteemed by amateurs, it is necessary that the sowing should not be too late, so that they may show blossom in the autumn; the most fitting time for this is from the beginning to the middle of April. The sowing is done in the same manner as that of the Summer Stock, and the treatment is the same, with only this difference, that the Summer Stocks are planted immediately where it is intended they should remain, whilst these are re-picked, and must be placed again in a cold bed, as mentioned for the sowing of the Summer Stock; when this is done, the chief root of every plant must be supported, that it may make more side-roots, which is of great importance to their subsequent development: after replacing, the plants must have closed air for some days, and shade, if necessary. They require but little time for growing up, and after that they must again be accustomed to the air, and the windows must be removed during the daytime in favourable weather. At the end of May or beginning of June they will be strong enough for transplanting. Beds which have not been manured lately should be chosen for this; however, the ground must not be too poor, nor too hard: plant in rows 1 foot apart, the plants about 1 foot distant from each other. After they have been thus planted they must be strongly watered if the weather is dry, and kept clean from weeds by frequent raking and loosening; should there be continual dry weather after they have been planted, it will be necessary to repeat the watering until considerable growth is made. In favourable weather the first buds will show themselves at the end of September, and they are immediately cut for implantation: for this purpose the plants are carefully lifted up with a spade, and the roots entirely freed from the earth sticking to them: if there is no opportunity for implantation near by, it would be advisable to cover the lifted-out roots with wet moss to protect them from withering. The most suitable earth for these Winter Stocks is a nutritious, clay-like, grass bank earth, to which must be added, in case the earth is too binding, a sufficient quantity of river sand: care must be taken in the implantation that the injured roots are clearly cut, and that they are sufficiently supported: the pots must be large enough to allow the extension of the roots: although all this has been done, still care must be taken that the plants do not penetrate more deeply into the earth than they were in the open air: after the implantation they must be placed in a cool, shady situation and be well watered; there they must remain until they are completely grown, and occasionally slushed with water, but only when the earth is very dry, which may be easily known by the fading of the leaves; they may then be removed to protected shelves before being taken into winter quarters: particular care must be taken in wintering these Stocks that they are watered as little as possible, and that they are not kept too warm, so that they may not begin to shoot too soon: in spring, when growth is again strong, they may be freely watered."

EFFECTS OF THE LATE WINTER ON VEGETABLES, &c.

It is now some years since we had a winter so destructive to garden crops in general. On all sides complaints are made of greens being scarce, young Cabbage plants almost destroyed, and no Broccoli. Added to this, the cottager complains of his seed Potatoes keeping badly; and the wetness of the season has occasioned much of the ordinary winter work to be delayed until, now we are within the verge of the busiest season of the year.

That the winter has been an unusually cold one is certainly a popular error so far as extreme frosts are concerned. In fact, individual frosty nights differed but little from those of the preceding two winters, which were regarded as mild ones; but we had them oftener, and what caused the destruction we now deplore was the continuous changes to which we have been subjected—frost, thaw, sunshine, and rain succeeding each other with a never-ceasing rapidity, varied now and then by a boisterous high wind and a fall of snow. These trying changes proved too much for the tender plants of the kitchen garden, that squares of Broccoli with nothing but dried drooping heads may be seen in all directions. Young Cabbage plants have disappeared entirely; and the same may be said of Lettuces; while the farmer finds his Swedes rotten beyond what he has seen for many years. This complication of misfortunes is sadly felt at the table of those not fortunate enough to have a large supply to run to; and as the spring Broccoli and early Cabbage will be equally scarce, many pitiful apologies will have to be made to the kitchen authorities for the non-appearance of these wonted favourites for a long time to come.

But such winters as the past teach us a useful lesson. They point out to us which of the various garden crops we have relied on are most likely to do us good service at such times; and it also tends to correct that erroneous notion got abroad that our winters are on the whole more mild than they were many years ago, or, rather, that they are more congenial to herbaceous vegetation. That it has been a trying one to shrubs or trees I can hardly admit, as several plants not generally found out of doors have stood this winter as well as before. But these alternating changes, acting on a tissue more absorbent—the leaves of ordinary evergreen shrubs and trees, have proved too much for them. Plants in a protected condition are safe enough. Cauliflowers, plants which in a general way are kept under glass, are more plentiful than Cabbages which are not indulged with any such covering, and consequently may possibly be cheaper in the market; while the wetness and coldness of the soil have detained Peas and Beans longer in the process of germinating than is usual in ordinary winters. But as we may now reasonably expect finer weather, we hope that things will advance unchecked when the growing season fairly sets in.

In making the above comments on the past winter, I must not omit desiring every one to note down its effects on their various crops; and when a variety has escaped with less injury than the others, to inform the reading public of the name and character of the variety. A good hardy Broccoli that furnished good useful heads on the 1st of April will be a great acquisition this season in the most ordinary places; and whatever variety of green or Colewort has done most service will be also regarded as a boon. I have one or two things in that way in view, and will report them in due time. But the bulk of gardening crops have suffered sadly; and, as before said, the early frost and cold state of the ground prevented any growth taking place during the winter, that the most of whatever in a general sense is understood as "greens" were of much slower and longer growth than they ought to be, and consequently less delicate and agreeable at table.

Brussels Sprouts have not done well with me the past winter; and I hear of several instances where they have been also inferior to their ordinary way, otherwise this useful servant often steps in the way to fill up a gap. Celery has not, however, kept badly; in fact, it has been preserved quite as well as usual. The frosts never having been very intense, it received less injury from that cause than from the wet. But the latter has been less hurtful than it would otherwise have been had the Celery been more forward when the winter set in; for a ripened condition of this useful vegetable is at variance with its keeping, as, like everything else, when it becomes perfectly ripe it is quickly verging on the turning-point of destruction; or, in fact, its vitality being less active, it more rapidly gives way to the trying ordeal of a sharp frost.

Beet, Carrots, and other roots in a stored-away condition have kept about as usual; but where Parsley was not in some degree protected, that article is very scarce.* A few plants taken up and potted in December, and placed in some warm corner, produce plenty of this useful garnishing article; for outdoors it is now bare enough.—J. Robson.

RHODODENDRON CROCKETTI.

This splendid Rhododendron, misnamed *leucanthum* by Professor Nuttall, is now blooming beautifully in the nursery of Mr. T. J. Booth, Rainhill, and also at Eccleston Parsonage, near Prescot.

The flowers are in crowded corymbs, with black spots on the upper petals, of a deep crimson scarlet, and of a richer colour and much larger size than those of *R. Windsorii*.

The late Professor Nuttall, who raised this variety from seed, collected in Bhotan (India), by Mr. Thos. J. Booth, named it *leucanthum*, from being under the impression that its flowers would prove white. He thus describes it under *R. Windsorii*, in Hooker's "Journal of Botany": — "Leucanthum, foliis elliptico-lanceolatis, opacis; *floribus albis*. This variety, or almost species, is readily distinguished by its more lanceolate leaves, of an opaque dull green above, but like the former beneath, passing at length from a silvery white to a pale brown; the flowers are also constantly white."

Mr. Nuttall having discovered last year that *leucanthum* was

* On the chalk subsoils of Hants, Parsley has not suffered at all.—Eds. C. G.

a misnomer when applied to this variety, expressed a wish to his nephew that a new name should be given to it; and Mr. Thos. J. Booth, believing that the appellation would have been most pleasing to his uncle, has, consequently, named it *Crocketti*, in honour of the Rev. R. P. Crockett, who was an intimate and attached friend of the late Professor.

This noble Rhododendron is offered for sale by Messrs. Henderson & Son, Wellington Road, St. John's Wood, London.

HEATING A CONSERVATORY—EFFECT OF LIQUID MANURE ON POTS.

I am erecting a conservatory, 16 feet by 11 feet, attached to my breakfast-room. Underneath the floor there will be a space 4 feet 6 inches in height.

Now, a stoke-hole would be unsightly. Can I fix my boiler in the space, leading the flue the length of the house, so that I might benefit by the heat that would otherwise go out unused? What size ought the flue to be? I think of three bricks on edge for sides, and tile (width ?) top and bottom. The furnace and ash-pit doors could open externally on the ground level.

What will be the effect of liquid manure on painted pots? Will they get saturated with the salts that effloresce on the surface of the rough ones?—L. M.

[So far as we understand your case, we see no difficulty in the matter. If the furnace-doors are eyesores, a doorway may shut out the enclosed place from observation. With the heat of such a furnace in it, a better place could scarcely be found for Mushrooms, Rhubarb, and Sea-kale in winter, only the work would have to be done with a sloping back. With a flue the size you speak of, and going along the front of the house, and that house a lean-to, we do not think you would need any boiler, if you merely wanted to exclude frost. If your house were span-roofed and nearly all glass, such a flue would not keep up enough heat in cold, frosty nights, though in such a case a larger flue in the centre, and immediately below a centre pathway, would do. We do not know enough of your premises to speak authoritatively. If your pots are hard burned, the liquid manure will have but little influence on the paint outside. If the pots are soft and porous, the salts of which you complain will come through, and in time cause the paint to peel off.]

DECAYED TAN FOR RHODODENDRONS.

A "Constant Subscriber" is anxious to have a bed of Rhododendrons about 18 feet by 14 feet, but fears the soil is too cold and wet. She is not near peat earth, but wishes to know if well pulverised tan will not do as well. She can readily get some five or six years old, and proposes taking out the original soil three feet deep, and putting in the tan, which has, to her, much the appearance of peat. Also, she would like to know whether a few waterings of strong liquid manure would be advisable for the first two months.

[We think your plan dangerous, but we have no experience on the point, nor is there any record that we know of, that American plants did well in very rotten tan. Perhaps some of our readers can tell.]

LOBELIA CARDINALIS MANAGEMENT.

This winter has been very fatal to *Lobelia cardinalis*. Last autumn I had three large beds full of it, which were cut down and covered with coal ashes as usual. On uncovering the beds a short time ago I found every plant a mass of decay. At first I thought that not one could be saved; nor could there, had I delayed another ten days examining them. However, here and there I found a little scrap of crown safe, though half eaten away. I collected all these, washed them well, cut in all the bad roots, and scraped every vestige of decay away. I then half filled some cutting-pans with leaf mould, sand, and charcoal in equal parts; placed the little scraps on this, covered them with sand and charcoal, and placed them in a gentle hotbed. They are doing famously, and I shall save my stock.

I advise all your readers to examine their beds at once, and if they find their plants going, to adopt this plan.

With regard to neglected old-fashioned flowers, let me put in a word for the *Rose campion*. I scarcely know any plant that makes so beautiful a bed in a grass garden. It is perfectly hardy, lasts from June till the end of September, and where will you find a richer crimson which contrasts so well with its grey leaves? I find that slightly pegging it down makes it more compact. —Q. Q.

HARDINESS OF WELLINGTONIA GIGANTEA.

I beg leave to add my testimony in favour of the hardiness of this famous tree. I procured a plant early in 1855; in March of the same year a site was selected purposely to test its capabilities of resisting cold, being much exposed on all sides, more especially to the prevailing westerly gales. If it proved hardy, the intention was to remove the plant to another place, as there were obstacles that would interfere with its future development. Our soil being a stiff clay, a little preparation was made for its reception: a circle, five feet in diameter, was dug two spits deep, and the stiffest portion wheeled away; several barrowloads of fresh turfy loam were brought to replace it. The centre of the pit was raised to the level of the surrounding ground. The plant, then nine inches high, was brought and shaken completely out of its pot and placed on this mound, drawing the roots out on all sides; but some of them were so coiled by having been pot-grown, that it was impossible to undo them completely. The weather being moist at the time, no water was given until the end of May; from that time throughout the summer artificial watering was resorted to occasionally. The following winter no protection was given whatever; in fact, it was resolved to let it sink or swim; brown it did get, but on the approach of warm weather it gradually assumed its now well-known beautiful green.

The two following years it received no extra attention. In the autumn of 1857 it had attained the height of three feet six inches. The following summer, although a very favourable one as regards moisture, it made only eleven inches of a leader. This was taken as evidence that the roots had extended beyond the prepared pit. The following spring, that of 1859, it was resolved to leave it permanently in the same site, the impediments to its future growth being removed. In February of that year a circular trench, twenty feet in diameter, was thrown out to the depth of three feet, commencing at the outside and working to the centre; when within three feet of the tree a careful man, armed with the much and deservedly used four-pronged steel fork, was put to disentangle the roots, as far as the extent of the first preparation. Fresh soil was procured, the top spit of an old pasture which was collected two years previously; to every cartload of this two barrows of bog mould which had become fine by long exposure were added; both were thoroughly mixed and thrown in, filling the trench to its original level. During the process care was taken to direct the disentangled roots into the compost. Its roots, which are a bright red colour, were most healthy, within eighteen inches of the surface. The summer following, viz., 1859, we were rewarded with a leader of twenty-two inches, although very unfavourable for extra growth, its height now being six feet four inches, and the thickest part of the stem twelve inches diameter. I expect that next summer, in consequence of its having now got established in suitable soil, it will make much greater growth. I shall watch and report its progress to you.

From the foregoing statement it will be seen that this great vegetable wonder is well suited to our climate, and now within the reach of those of very limited means. Regarding its propagation, pieces about two inches long root readily in sand under a bell-glass, but my cuttings have not that promising appearance which would warrant me to recommend that mode of propagation: seedlings, I am of opinion, will eventually be found to make the handsomest trees.

I suggested some years ago to Her Majesty's Commissioners to have a *Wellingtonia* planted at each of the four angles of the great conqueror's testimonial in the Phœnix Park. Scarcely could a more lasting memorial be raised, or a more appropriate site be chosen. It may be interesting to learn how some of the other recently introduced Coniferæ have fared during the past winter—*Thuja gigantea*, much exposed, very hardy; *Thuiopsis borealis*, ditto; *Cephalotaxus Fortuni*, ditto; *Biota glauca*, quite uninjured; *Cupressus M'Nabiana*, ditto.

Cupressus Lambertiana, and *C. macrocarpa*, planted in 1853, then 18 inches high, have attained the height of 20 feet, by 11 and 13 respectively. The variety *Lambertiana* here weeps at the points of the horizontal branches, giving it much the appearance of the well-known beautiful Himalayan Cedar. By reports from other localities and my own experience, I consider, as ornamental

evergreen trees, and by their suitability to the soil and climate, these two Cupresses stand unrivalled.—D. Pressly.—(*Dublin Agric. Review.*)

THE CANARY AND THE BRITISH FINCHES.

(*Continued from page* 26.)

THE WILD CANARY OF MADEIRA (*Fringilla butyracea*).

I have not yet met with a good description of the Wild Canary (*Fringilla Canaria*), of the Canary Islands; but some naturalists regard the *Fringilla butyracea* of Madeira, and *Fringilla Canaria* of the Canary Islands, as identical, or, at least, very similar, possibly a description of the Madeira variety may suffice.

C. Darwin, Esq., has kindly forwarded me the skin of a Wild Canary, brought direct from Madeira. This measures—length of the beak four lines; breadth at base, two lines; and depth of base, three lines. The shank of the leg is eight lines in height; the middle toe measures six lines, and the hind toe four lines in length. The colour of the plumage is what Canary fanciers term grey. The quill-feathers of wings and tail are blackish edged with grey; the top of the head and upper parts of the body are dark grey, with longitudinal black marks between the shoulders; the throat and breast are yellowish-grey tinged with green; the belly white, with a few longitudinal dark spots above the thighs.

From a few I saw in one of the aviaries at the Crystal Palace (1859), they appeared short and rounded in form, much resembling the Norwich birds in shape.

The following description is from Dr. Heineken, "Zoological Journal," vol. v., p. 70. He considers *Fringilla Canaria* and *Fringilla butyracea* as synonymes, and he here gives an elaborate description of the bird as it appears in Madeira. Of its habits, Dr. Heineken says, "that it builds in thick, bushy, high shrubs and trees, with roots, moss, feathers, hair, &c.; that it pairs in February, lays from four to six eggs of a pale-blue colour, and hatches five times (not unfrequently six), in a season. He observes that it is very familiar, haunting and breeding in gardens about the city. It is a delightful songster, says the Doctor, with, beyond doubt, much of the Nightingale's and Skylark's, but none of the Woodlark's song, although three or four Skylarks in confinement, in Funchal, are the only examples of any of these three birds in the island; and notwithstanding the general opinion that such notes are the result of education in the Canary, it is in full song about nine months in the year. I have heard one sing on the wing, and passing from one tree to another at some distance, and am told that during the pairing season this is common. Each flock has its own song, and, from individuals in the same garden differing considerably, I suspect that each nest varies more or less. After the breeding season, they flock together with Linnets, Goldfinches, &c., and are then seldom seen in gardens. The moult takes place in August and September. An old bird caught and put in a cage will sometimes sing immediately; but it seldom lives longer than the second year, in confinement. The young from the nest are difficult to rear, dying generally at the first moult. They cross readily with the domesticated variety, and the progeny are larger, stronger, better breeders, and, to my taste, also better songsters than the latter; but a pure wild song from an island Canary, at liberty in full throat, and in a part of the country so distant from the haunts of men, that it is quite unsophisticated, is unequalled in its kind by anything I have ever heard in the way of bird music."—B. P. Brent.

PRUNING BACK CALCEOLARIAS.

DIANTHUS HEDDEWIGII IN SUCCESSION—TOM THUMB GERANIUM CUTTINGS.

Will Calceolaria *Prince of Orange* bear pinching back till the end of July? I want it to succeed a bed that will not be out of bloom till that time.

Will the spring-sown *Dianthus Heddewigii* (up March 16), do to succeed autumn-sown plants?

I see in a back volume that spring cuttings of *Tom Thumb* Geranium go too much to leaf. Would it, therefore, be best to plant them out in pots? and *Crystal Palace Trentham* the same?

Which is best, Gishurst Compound or Parmenter's?—Q. Q.

[You may keep this and all the bedding Calceolarias from blooming till late in the summer, by merely cutting off the flower-stalks as fast as they rise, *not by stopping the shoots;* but if you keep them in the pots in the meantime, you will get very little good out of them. The plants should be planted at good distances apart early in May, and transplanted with very large balls when the beds are ready for them.

The spring-sown *Dianthus Heddewigii* should be treated generously from pot to pot, and then they will succeed those sown in the autumn certainly; but, to do them justice, they ought to be planted out in May, as early as each of them fills a No. 60-pot with its roots. Then they should stand from a foot to fifteen inches apart to get them into a most gorgeous mass, and the soil should be good enough for Broccoli, but not too strong.

The specimen of *Campanula carpatica* was lost. If it did produce seeds it would be one of the "mad tricks" to sow them. The plants increase at the roots from sixty to six hundredfold faster than you can find room for them. Also, from cuttings like the blue Lobelias, when you have only one plant.

You surely never saw from any of our own staff of writers, that spring cuttings of *Tom Thumb* Geraniums went too much to leaf, nor spring or autumn cuttings of the *Crystal Palace Scarlet* either. The latter we have grown seventeen years, and can vouch for it to do better than any other scarlet, from cuttings made anytime the year round.

As to those "compounds," there has not been sufficient time yet to test their comparative merits.]

A HELP TO KEEP WALKS IN GOOD TRIM.

It has been asserted, and, I believe, generally admitted, that well-kept walks are a great "setting off," both to large and small gardens, and, undoubtedly, the assertion is true. For what is more unsightly than a walk, or terrace, with a "little path" as it were down its centre, and, perhaps, weeds or moss continually springing up on its sides, the labour of which, where many have to be attended to, is somewhat considerable?

In walking through a garden (of no small importance in most matters), some weeks back, I could not help noticing some of those "little paths," and which looked (in my mind's eye), little better than "hare's-runs" or "sheep-walks." Now, to an admirer of a well-kept walk, a sight like the above is something odious. In these gardens (Thornham), we make it a rule that no working

man shall walk in the centres of garden-walks. The difference is obvious, as, instead of seeing "hare's-runs" or "sheep-walks" (if I may use the expressions), we see well-trodden, and, consequently, well-kept walks. Now, I have no wish to make a roller of every man's feet; but I think that if a little more care were exercised in this matter by men connected with the garden, it would add more to the comfort of the men, and also add to the general appearance of the grounds in the way of good keeping.

I must admit that it is not without some little trouble to induce them to conform to the rule, but with a little coaxing they will soon fall in with our views, and the best workmen, it will be found, will be the most particular in keeping to the plan.—John Perkins, *Thornham Hall, Suffolk.*

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page 27.*)

PLUMS.

St. Maurin. See *d'Agen.*
Sans Noyau. See *Stoneless.*
Schuyler Gage. See *Green Gage.*
Semiana. See *Italian Quetsche.*
Shailer's White Damson. See *White Damson.*
Sharp's Emperor. See *Victoria.*
Sheen. See *Fotheringham.*
Shropshire Damson. See *Prune Damson.*
Sir Charles Worsley's. See *Royale.*

Smith's Orleans.—Fruit large, oval, or roundish-oval, widest towards the stalk, and marked with a deep suture. Skin reddish-purple, strewed with yellow dots, and covered with thick blue bloom. Stalk half an inch long, slender, inserted in a deep cavity. Flesh deep yellow, firm, juicy, richly briskly flavoured, and perfumed, adhering to the stone. Shoots smooth.

An excellent plum. Ripe in the end of August.

Standard of England.—Fruit above medium size, obovate, and marked with a shallow suture. Skin pale red, strewed with yellow dots, and covered with thin bloom. Stalk three quarters of an inch long, inserted in a small cavity. Skin rather firm, juicy, and briskly flavoured, separating from the stone. Shoots smooth.

A culinary plum. Ripe in the beginning of September.

Steer's Emperor. See *Goliath.*

Stoneless (*Kirke's Stoneless; Sans Noyau*).—Fruit small, oval. Skin dark purple, or rather black, covered with blue bloom. Stalk half an inch long. Flesh greenish-yellow, at first harsh and acid, but when highly ripened and when it begins to shrivel it is mellow and agreeable. The kernel is not surrounded by any bony deposit. Shoots downy. Ripe in the beginning of September.

Sucrin Vert. See *Green Gage.*

Suisse (*Monsieur Tardive; Switzer's Plum*).—Fruit medium sized, round, slightly depressed at the apex, and marked with a very shallow suture. Skin of a fine dark purple next the sun, but paler on the shaded side, strewed with yellow dots, and covered with blue bloom. Stalk three quarters of an inch long, inserted in a rather wide cavity. Flesh greenish-yellow, juicy and melting, with a rich, brisk flavour, and adhering to the stone. Shoots smooth.

A preserving plum. Ripe in the beginning of October.

Sweet Prune. See *Quetsche.*

Switzer's Plum. See *Suisse.*

Tardive de Chalons.—Fruit rather small, round, inclining to oval, and marked with a well-defined suture. Skin brownish-red, thinly strewed with minute dots. Stalk three quarters of an inch long. Flesh, firm, tender, sweet, and well flavoured, separating with difficulty from the stone. Shoots downy.

A dessert or preserving plum. Ripe in October.

Topaz (*Guthrie's Topaz*).—Fruit medium sized, oval, narrowing at the stalk, and marked with a distinct suture. Skin fine clear yellow, covered with thin bloom. Stalk an inch long, inserted in a small cavity. Flesh yellow, juicy, sweet, and richly flavoured, adhering to the stone. Shoots smooth.

A dessert plum, ripening in the middle and end of September, and hanging till it shrivels.

Transparent Gage (*Prune Transparente; Reine Claude Diaphane*).—Fruit rather larger than the Green Gage, roundish-oval, marked with a shallow suture. Skin thin and so transparent as to show the texture of the flesh, and also the stone when the fruit is held up between the eye and the light; pale yellow, dotted and marbled with red. Stalk three quarters of an inch long, thin, and inserted in a shallow cavity. Flesh yellow, rather firm and transparent, very juicy, and with a rich honied sweetness, separating with difficulty from the stone. Shoots smooth.

A most delicious dessert plum. Ripe in the beginning of September.

Trompe Garçon. See *Green Gage.*
Trompe Valet. See *Green Gage.*
Turkish Quetsche. See *Quetsche.*
Verdacia. See *Green Gage.*
Verdochio. See *Green Gage.*
Verte Bonne. See *Green Gage.*
Verte Tiquetée. See *Green Gage.*

Victoria (*Alderton; Denyer's Victoria; Sharp's Emperor*).—Fruit large, roundish-oval, marked with a shallow suture. Skin bright red on the side next the sun, but pale red on the shaded side, and covered with thin bloom. Stalk three quarters of an inch long, stout. Flesh yellow, very juicy, sweet, and pleasantly flavoured, separating from the stone. Shoots downy.

A culinary plum. Ripe in the beginning and middle of September.

Violet Damask (*Damas Violet*).—Fruit medium sized, oval, narrowing towards the stalk, and slightly flattened on one side. Skin reddish-purple, covered with delicate blue bloom. Stalk half an inch long. Flesh yellow, firm, sweet, and briskly flavoured, separating from the stone. Shoots downy.

A dessert or preserving plum. Ripe in the end of August.

Violet Gage. See *Purple Gage.*
Violet Perdrigon. See *Blue Perdrigon.*
Violette de Tours. See *Précoce de Tours.*
Virginian Cherry. See *Cherry.*

(*To be continued.*)

NOTES MADE IN HUNGARY.

Gödölö.—At present, the taste for the picturesque is, perhaps, as little felt in Hungary as in almost any country in Europe. The negligence with which the position of a house is commonly chosen, the absence of gardens and parks, or, if present, the bad taste with which they are laid out, and the carelessness with which they are kept, are strong evidences of this deficiency. There are, however, some very striking exceptions; among which, Gödölö, in the neighbourhood of Pest, stands pre-eminent. In spite of the disadvantages of a sandy soil, and rather a flat situation, it would be difficult in any part of England to find a flower-garden either more tastefully disposed, or more perfectly kept, than that of the Princess Grassalkovich. All the varieties of lawn, boscage, or bower—all the lesser elegancies of trellis, basket, and bouquet, have been taken advantage of in the best manner. Another beauty of Gödölö is the Dairy. It is situated in what was formerly a forest; and which, by judicious cutting out, now forms a very beautiful natural park. In appearance it is a pretty little villa, and we entered by an elegantly furnished parlour which leads into a circular saloon. On each side of this saloon open two folding-doors, which disclosed—what shall I say?—two vaccine drawing-rooms! for cow-houses I cannot call them. A wide walk runs through the centre of the rooms in the form of a cross, towards which looked about one hundred cows; and, at the angles of the cross, four magnificent bulls. Nothing

could be better behaved than this society; the very bulls had a *sotto-voce* bellow, quite different from that of vulgar bulls, by which they expressed their sovereign wishes to their matron dames. The cows are of Swiss breed; on one side of the dairy they are all red, on the other all spotted. Behind each cow was a diary of her age, food, milk, &c. The Swiss cows are preferred, I believe, rather for their beauty and rarity, than for any superiority in milking or feeding, to the native white or dun breed of Hungary; which, by a little care and attention, might probably be much improved. It is doubtful whether the introduction of new breeds, or the cultivation of those natural to the country, is the more advantageous.

Tobacco.—The road we were pursuing offered few objects to interest us: it is true, we passed the ruins of the two old castles of Neográd and Honth, but they are remarkable only as giving their names to the two counties in which they stand. It was August, and the peasants were busy in some places gathering the Tobacco leaves. This harvest occupies more than a month; as they only pluck the leaves at intervals as they ripen, taking first those from below, and rising as the upper leaves expand and get ready. The first gathering had been finished some time, and its produce was hanging to dry in long festoons under the eaves of the cottages. I know no garlands whose effect, either on the moralist or painter, can be more pleasing than those of the green Tobacco leaf and the bright yellow Maize as they cluster in fine contrast round the dark wooden cottage of a rich contented peasant. The best Tobacco, however, is not grown here, but in the county of Heves, where its cultivation and preparation are well cared for, and a very superior article is produced. As an old smoker, I must declare that I know nothing equal to a pipe of good Hungarian Tobacco, except, perhaps, some of the best Turkish.

Tokay.—We were too early to enjoy any of the festivities of the vintage of Tokay, which call all the nobility of the neighbourhood together, and are generally kept up with balls and fêtes for at least a fortnight. What the reader will perhaps think less pardonable is, that I can say nothing of the process of making the wine from personal observation; but I have heard it so often described by persons themselves possessing vineyards, that I can probably give more accurate information about it than if I had myself witnessed it. The whole of the Hegyalla mountains, extending along the banks of the Bodrog twenty miles north of Tokay, produce the Tokay wine. The finest sorts, however, are grown only in Tokay, Tartzal, Zombor, Tállya, Mád, Keresztur, and some few other villages; the very finest only on a small hill, the Mézes-Mále, in the parish of Tartzal. About Tokay, and I believe along the whole chain, the hills are composed of basalt and trachytic conglomerate, covered with a deep sandy soil. The Grapes are of many different kinds, of which the *Formint* and *Champagne* are considered the best. The lateness of the vintage, which is not begun here till the 26th of October, when it is finished in other parts of the country, has considerable effect on the quality of the wine. Three kinds of wine are made at Tokay,—the *Essentz*, the *Ausbruch*, and the *Máslás*, so called from the different modes of preparing them. From the length of time the Grapes hang, a great number of them lose part of their juice, begin to wither, and become exceedingly sweet. These Grapes, when gathered, are placed on wooden trays, and sorted one by one with the greatest care, only the finest being selected; those which are too much withered, and those which are unripe being alike rejected. When it is wished to obtain the *Essentz*, these Grapes are placed in a barrel with holes at the bottom, through which all the juice that flows, without any other pressure being applied than their own weight, is allowed to pass off;—and this it is which constitutes the *Essentz*. After the *Essentz* is extracted, or,—as happens most frequently—when none has been taken, the Grapes are at once placed in a vat and gently pressed with the hand, a small quantity of good must, or new wine, obtained in the ordinary manner, being poured over them to increase the quantity and facilitate its flow;—and the result of this process is the *Ausbruch*. To produce the *Máslás*, a large quantity of less choice must is poured over the same berries, which are now pressed as in making common wine. The *Essentz* can only be obtained in the very best years; and, indeed it is only in favourable years that *Ausbruch* of a good quality is produced. The wine ought to have a fine, bright, topaz colour. The *Essentz* is sweet and luscious to the highest degree, and is esteemed rather as a curiosity than as pleasing to the palate; but it is the *Ausbruch* on which the reputation of *Tokay* depends. It is a sweet, rich, but not cloying wine; strong, full-bodied, but mild, bright, and clear; and has a peculiar flavour of most exquisite delicacy. I have never tasted it in perfection but at private tables, and that only twice; I could then have willingly confessed it the finest wine in the world. The *Máslás* is a much thinner wine, rather sweet, with a preponderating flavour of the dried Grape. The product of the whole Hegyalla vintage, in an ordinarily favourable season, may amount to about 250,000 *eimers* (the eimer contains about as much as sixteen ordinary wine-bottles); of which not more than one-quarter, and probably much less, is *Ausbruch*. *Tokay* should not be drunk till it is some years old; and it is none the worse for twenty years' keping in a good cellar. Even in Hungary I have known a duat (10*s*.) given for a pint bottle of good old *Tokay*. For a fair wine, however, of three or four years old, four shillings the common bottle is a good price, and it may generally be obtained at that rate without difficulty. The expense of transport and duties comes, I think, to about two shillings the bottle more. Great care, however, should be taken in choosing a person to whom it may be safely confided. Two cases, which we entrusted to a merchant of Pest, arrived in England in a state of fermentation, with more than half the bottles broken, and the rest quite spoiled. We have every reason to believe that this arose from a portion of our wine being taken out and the bottles filled up with new wine; and, though the evidence is not sufficiently strong to justify me in publishing the name of this person, it is more than enough to make me caution any future traveller to be quite sure of his man before he ventures on giving such a commission. A society for "making known Hungarian wines" has lately been formed at Pest, and in its cellars genuine wines, supplied by the growers themselves, may be obtained; and Mr. Liedermann, a merchant and banker of Pest, who is connected with the society, will undertake to forward them.—(*Paget's Hungary and Transylvania.*)

TRADE CATALOGUES RECEIVED.

A Catalogue of Bedding and other choice Flower-Garden Plants. By John Scott, Merriott Nurseries, Crewkerne and Yeovil, Somerset. This is a well-got-up descriptive catalogue, and will be useful to purchasers.

A Descriptive Catalogue of Chrysanthemums, Dahlias, Fuchsias, &c. By William Holmes, Frampton Park, Hackney. From Mr. Holmes's well-known reputation as a florist, and particularly as a successful grower of Chrysanthemums, this catalogue will be regarded as one of authority in its descriptions and selections. It is prefaced by an excellent paper on the cultivation of the Chrysanthemum. We have also before us Mr. Holmes's *Catalogue of Garden, Agricultural, and Flower Seeds.*

Catalogue of Geraniums, Fuchsias, Dahlias, Hollyhocks, &c. By Edward Taylor, Nurseryman, &c., Malton, Yorkshire. This is also an excellent and useful descriptive catalogue, and contains judicious selections of the new varieties of florists' flowers.

Messrs. Hugh Low & Co., of Clapton, have issued a quarto sheet of four pages, containing a descriptive list of their novelties for the spring of 1860. Many of these are very fine things, and consist of such plants as *Pinus Lophosperma*, *Allocasia metallica*, *Sphærostemma marmorata*, a great number of Begonias, Verbenas, Roses, Fuchsias, Pentstemons, and Chrysanthemums.

TO CORRESPONDENTS.

Circular Bed (*C. Lawford*).—Again we have to reply we cannot plant, we only point out where the planting proposed is defective. *Golden Chain* is usually used for rows, not for a mass.

Pear Blossoms without Stamens (*A Very Old Subscriber*).—By all means try shaking pollen on the bloom; but if another Pear tree is near the bees ought to convey it. Try ringing one of the branches immediately. Send us some specimens of the blossoms when open.

Removing Ranunculuses (*E. N. N.*).—Ranunculuses can be removed from the day they appear above ground till the day the leaves die back. All through the growth and blooming season we always regulate ours and our Crocuses when they are in bloom. We took up two of the rarest of them in England this week in bloom, and sent them seventy miles by post. Tobacco water is the safest for you, and the compound water the cheapest. 70° or 75° is hot enough for a Waltonian Case in the morning, and from 80° to 85° at mid-day. Water and sand are the best mixture *for Verbena cuttings only*, and only when they are to be in an open greenhouse or living-room, not when closely confined.

Name of Rhododendron (*R. H. O.*).—It is *Rhododendron ciliatum*, the poor man's Rhododendron of all the Sikkim kinds, because it is the easiest of them to grow, the best pot plant of them all; and if it is kept in a warm greenhouse, after flowering in the spring, till the flower-buds are well set, or if it is forced to set them earlier, it will come in naturally for bloom at

the beginning of winter, like Camellias and Azaleas so treated, and it is quite hardy. Botanically, it is one-half an Azalea, and will breed freely with the best of them. The young leaves are as much ciliated on the edges as eyelids, and the beautiful fringe is deciduous. It falls off aged leaves. We have constantly kept *Rhododendron ciliatum* before our readers from its first appearance seven or eight years back.

Chrysanthemums (*W. H. B.*).—Your Chrysanthemums are all Pompones, and only third-rate kinds, except 1, 3, and 6, which are first-rate. But flower them all before you discard any of them, as your own taste may differ widely from public opinion. Here are the right names and colours:—1. *President Morel*, Indian red, or red cinnamon. 2. *Mr. Astie*, a good yellow Anemone. 3. *General Canrobert*, one of the best yellows. 4. *Ariel*, a fair blush lilac flower. 5. *Robert le Diable*, a bull's-eye and salmon colour. 6. *Mrs. Fould*, "that lovely Mrs. Fould," creamy-white. 7. *Zoe Feille*, a violet rosy liliputian. 8. *Reine des Anemones*, white, and pretty good. 9. *Roquelaure*, a red bull's eye. 12. *Antoinette*, a white bull's-eye.

Sowing Gentianella (*C. B. Johnson*).—The seeds of this (*Gentiana acaulis*), should be sown in pots or pans as soon as they are ripe, but they will not vegetate till the following spring. Plunge the seed-pots in a shaded place, and put a pot one size larger upside down over each of them, to save them from splashing rain. When the seedlings are large enough to handle plant them out six inches apart, and in two years they will begin to bloom. Old seeds will lie dormant two or three years, and then come up very irregularly. We only recommend this plan to satisfy curiosity.

Photography for the Many (*Evesham*).—It is published at our office. For seven postage stamps it can be sent to you free by post.

Charcoal Filter (*A Subscriber*).—We have made it as follows:—In a clean barrel set on end, with a tap in the side, we placed a layer three inches deep of flint stones; above them a one-inch layer of pebbles; then two inches of sand; then two inches of charcoal in small grains; then two inches of sand; and lastly, three inches of flint stones. On no account paint the filter inside.

Tiffany (*R. C.*).—It is a very fine whitish cotton canvass, made at Manchester, admitting much light.

Names of Plants (*E. B.*).—Your two plants are—1. The *Illicium Floridanum*, and 2. *Illicium parviflorum*, two species of the Aniseed tree. (*W. N.*).—Your plant is the *Acacia umbrosa*, a native of New South Wales. The leaf of the Tydœa is infested with the thrips. (*C. P.*).—1. You call "the podded piece" is too small for us to be able to recognise: it comes near to Alströmeria. 2. The "flower" is *Saxifraga crassifolia*. 3. "The leafy piece" appears to be *Nepeta violacea*, but no one can be certain from such specimens.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

May 23d and 24th. Beverley and East Riding of Yorkshire. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

June 6th, 7th, and 8th. Bath and West of England. At Dorchester. *Sec.*, J. Kingsbury, Esq., Hammet Street, Taunton. Entries close May 7.

June 29th and 30th, July 2nd and 3rd. Sheffield. *Chairman*, Mr. Wilson Overend, Sheffield. Entries close June 14th.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

SPRING MANAGEMENT OF CHICKENS.

If we were asked whether the greatest number of human beings were killed by positive neglect, or by mistaken kindness, we should not know what to answer; but we have no such difficulty with chickens. As usual, at this season of the year, we have numerous complaints about the deaths of chickens, and lamentations over disappointments. Every such letter recapitulates the advantages enjoyed by these chickens that will not or would not live. Poor little sufferers, how we pity them! Some had a stable or harness-room heated with a stove, others were allowed to live in the hothouse or the grapery; one brood had a large box to live in, supplied with all nature can require, and covered at top with plate glass, that they might have light and sun without cold air; yet their owners are astonished they are delicate and do not grow, as one lady pathetically remarks, "They do not die in the common acceptation of the word, there is no illness, no struggle, but they seem to perish of inanition!" We have seen many such, their heads were tucked under their wings, save when some excellent meal was placed before them, they would then drowsily wake up, and totter to their food. If such a chicken escaped from its prison, it seemed lost. It tried, perhaps, to scratch, but the poor little, white, slender toes, and the soft nails, refused to lend themselves to such rough work. For a moment it pursued a heedless fly, but soon gave up the chase in despair. It had left its artificially-heated home, and the chill air was too much for it. It was out but half an hour, and that killed it. If chickens are reared like hothouse plants, they must have the same treatment as they do throughout, and the sudden change from a heated to a cold temperature is as fatal to one as the other. In no instance is a tenderly-reared chicken as strong as one that has been taken care of only by assisting Nature.

Let us not be misunderstood. We do not advise you to hatch chickens two or three months before the natural time, and to turn them out to take their chance; it would be cruel, and could end only in death. They must be kept warm at night, and frequently fed. We are more convinced than we ever were that air is essential to chickens; that sun is as good as food for them; and that heat must be obtained by food, the natural method, rather than by stoves and hot water. If statistics could be obtained it would be found that among the best chickens that could be produced on the 1st of June, ninety out of a hundred had been reared out of doors entirely. While we cannot look at the hothouse poultry without pity, we can survey our out-door birds with pleasure and pride. Sturdy, square, clean, bright chickens wandering far from the hen, scratching wherever there appears hope of any result from it, turning over every leaf in search of insects, picking up the blade of grass or the speck of verdure that has appeared since the day before. See them when the feeder appears, how they run to meet him—how they knock a large morsel to pieces; and when they have filled their crops, see the satisfied shake and stretch, and then they seek a sunny spot on a bank, if possible; they turn up the dust, they bury one side in the hole they have made, they cover the other with dust; they raise their wings, stretch out their leg, and bask and grow in the glorious sunshine.

These are the chickens that have no care taken of them; and the owners of such send us no queries, unless it be to ask where they can dispose of some early birds, as they are overstocked.

SITTING NESTS.

The following appears to me to combine in a simple way the desiderata of a sitting nest.

I have made one or two holes in the wooden wall of my poultry-house, and have put against each hole a box with one of the smaller sides knocked out. The hens take very kindly to these nests, as the darkness and retirement suit their instincts. I remove the eggs by lifting the lid of the box without the discomfort of entering the poultry-house; and when a hen sits I transport her, box and all, to the quiet sitting-house in the evening, and place another box in the place of the one removed.

A cheaper plan than having a box with a lid is to buy a tea-chest of a grocer, put the mouth of it against the hole, cut out a hole large enough to admit your arm to get the eggs, and cover this hole with something to keep the box dark. These boxes cost 4*d.* or 6*d.*—C. R.

PROFITABLE POULTRY.

We promised to look at poultry as profitable, the profits to be derived from market.

If it be an object to make the outlay as small as possible, to invest as little capital as may be, and if profit be the only thing looked at, then of course good, useful, sound birds will be all that are asked for at the outset. At the same time we would observe the process by which these fowls, bred for the table only, are made profitable, is equally available and efficacious for surplus stock of the highest character and faultless strains. One reason why many amateurs have been disappointed at their sales and frightened at their expenses has been they have determined to sell stock birds only, and have, therefore, kept a much greater number than was necessary; have swelled the meal-bill, and spoiled their market by looking to sell at such prices as they gave for the parent birds. The return to be made by a pen of first-class and first-prize birds is not to be immediate; it will probably spread over some years, but a return is not the less certain if the money has been judiciously expended. We take this view because we are treating of profitable poultry. When hundreds of pounds are paid for a "Master Butterfly," or for a stud-book short-horn heifer, the profit is in prospective, but generally safe. It must be so with your poultry. Having secured a good breed, either an expensive one for exhibition, or a good hardy one for the table, you look for the beginning of the return. We have spoken of exhibitions in former papers: we now speak of the market. We are writing more for the middle and needy than for the upper and wealthy classes; we shall have no difficulty in persuading them poultry is not profitable on the table. Except Goose or Duck, it wants some other meat to eat with it; it requires gravy. Two fowls weighing 9 lbs. do not offer as much resistance at table to the assaults of hungry boys and girls as a leg of mutton of 7 lbs. Then everybody eats more of poultry than of meat. Home consumption is not then profitable. The first report of the market is not favour-

able; fowls always sell very low, and in the spring there is no sale at all. This is all true, but it admits of explanation; they sell low because they are not worth more; there is no sale in the spring because, as a rule, none but old birds have ever been offered. In most country markets poultry is considered out of season from March till June, or July; yet in London it is in season all the year round. The first thing asked for by those who visit town in the season is a London fowl. It is always good, and, although expensive, it is thought to be worth the money. The same people would buy a good fowl in the country if they could, but it has always been impossible. Those who undertake to supply the market must not be discouraged if there is but a poor sale and little or no demand at first. There is not only prejudice to overcome, but fact. Customers are to be made of those very people who have bought and bought again, only to be more and more convinced there are no young fowls to be had in the spring. They will be as long in changing their opinion as they were in forming it.

BEES AND THOSE WHO HAVE WRITTEN ABOUT THEM.

(*Continued from page* 15.)

In our 5th volume will be found extracts from the autobiography of Thomas Tusser, the next writer, in chronological order in whose publications we find any mention of bees, and his notice of them is very brief. His little pamphlet entitled "A hundreth good poyntes of husbandrie," was "Imprinted at London in Flete strete, within Temple barre, at the sygne of the hande and starre, by Richard Tottel, the third day of february. An. 1557," and it contains these rhymes:—

"Saint Mihel byd bees, to be brent out of strife:
saint John byd take honey, with fauor of life.
For one sely cottage, set south good and warme;
take body and goodes, and twise yerely a swarme.

"At Christmas take hede, if their hiues be to light:
take honey and water, together wel dight.
That mixed with strawes, in a dish in their hiues:
they drowne not, they fight not, thou sauest their lyues."

According to these brief rules, which need some interpretation, such hives as were not intended to be saved as stocks, were burnt at Michaelmas; but those which were only to be deprived of a part of their store and their lives spared, were to have it taken about St. John's day, June 24th. This depriving, we learn from the next writer we shall quote, was then termed "gelding the hiue." By "sely' we consider Tusser meant "goodly," from the Anglo-Saxon, *sel*, good, and that from one good hive, well sheltered and facing the south, not only two swarms but honey might be obtained annually.

Some years subsequently—viz., in 1573, Tusser published his "Five hundredth points of good husbandry, united to as many of good huswifery." They do not include the above rhymes, but under "May's husbandry," he says:—

"Take heed to thy bees, that are ready to swarm,
The loss thereof now, is a crown's-worth of harm;
Let skilful be ready, and diligence seen,
Lest being too careless, thou losest thy been."

On which we need only observe, that *been* in Anglo-Saxon is the plural of *bee*, and in Tusser's time was used, just as *housen* is still used for *houses* in many parts of Essex and Suffolk.

Next, in our catalogue of English writers upon bees, appears "Thomas Hill, Londoner," and in that appendage to his name, is comprised nearly all that we know of his whereabouts. He appears to have been one of those miserable men who in that age lived by writing upon any subject the booksellers required. At all events, books bearing his name are extant upon such varied themes as astronomy, arithmetic, dreams, physiognomy, gardening, divinity, and bees. If he was the Dr. Hill mentioned by Wood in his "Athenæ Oxoniensis," he eventually became a pervert to the religion of Rome, and died on the continent early in the seventeenth century.

His pamphlet is entitled, "A profitable instruction of the perfect ordering of bees, with the maruellous nature, property, and gouernement of them: and the necessary vses, both of their honnie and waxe, seruing diuerslie, as well in inward as outward causes: gathered out of the best writers." "Imprinted at London by Edward Alde, 1593."

The writers "gathered out" of are the classics from Aristotle downwards, as well as Galen, Hieronimus Cardanus, Guilhelmus de Conchis, and others of similar acquirements. Of these gatherings we shall take no notice, but there is one or two passages referring to the bee-keeping at the time Hill lived, which are worthy of quotation, being, as he remarks, "a thing verie rare, and seldome seene in the English tongue."

The knowledge of the natural history of the bee was no more than that possessed by Pliny,—the sex of the monarch of the hive was still misunderstood, being spoken of only as "the king."

Of hiving a swarm, Hill thus speaks:—

"When the bees are now in a tumult in the aire, by throwing fine earth on high ouer the Bees or ringing a bason or kettle, they be with the shrill sound astonied, that they may the sooner settle downe neer the keper, which if the same happen to be on the branch of a tree, or on a graft or yong set, then with a sharp sawe, gently saw that off and lay it on the ground, and speedily set a hiue on the same prepared for that purpose: for by that meanes (without dout) will the whole swarme fly vp to the top & head of the hiue. Yet it often hapneth, that they doe not wholy cleave on a heap to ye branch of a tree, but to the stocke or body of the tree, which to be cut, must be by great force, and so not able to be recouered by this means. In such a case the swarme must be quickly swept off, either with the hand, or with a Goose wing, that they may so fall togither into the hiue. If the swarme happen to be clustered togither on the top of a tree, so high that they cannot be climed unto, to take them downe then, after the shaking of them into the hiue (turned vp), either with a pole, or high forke, the hiue must speedely be turned downe to the earth."

Of hives, he says:—

"I suppose our forme of hives heere in England, are not altogether to be disallowed, although they be in like daunger to bee easily burned, as the other hiues aboue taught, in that they be made with straw. But to bee briefe, for a great swarme you ought to haue in a readines a great hiue, and for a small swarme a little hiue. And the hiue also ought to bee a foot and a halfe, or two foot high, and in breadth above two foot and a halfe, or somewhat larger: Having besides two very small and narrow holes, somewhat asunder, and so litle ought the mouths to be, that neither beetle, butterfly, great moth, humblebees, Euet, nor mouse may enter in, to spoile the hony combes. Some suppose, or rather affirme of experience, that the bees are delighted with this closeness, in that they more ioy to do their works and busines in the darke, than otherwise."

The mode of depriving, or, as Hill expresses it, "When and how the hives ought to be gelded," is copied from the old Roman writers, Palladius and Varro.—G.

(*To be continued.*)

BEE-HOUSES AND BEE-BOXES.

"An Old Bee-master" has quite mistaken my communication to you. Let him read again. Many may have fallen into the same pit as I have done; therefore, I beg to caution all who keep bees in boxes.

He says, "it may be *pardonable* in one who evidently has little experience, to ask for information." I always thought it was *praiseworthy* in the ignorant, "to ask for information."

The house I built last spring (February, 1859) was 10 feet 6 inches long, 4 feet 4 inches high at the two ends, and 6 feet 8 inches high in the middle. Facing S.W. ½ W. Was covered up in the *front* with half-inch deal boards. There were two sets of bars going the whole length. The front is quite free from trees, bushes, &c. At the back (about 4 feet) is the garden fence, an open railing, and at the back of this is a high hedge, with a tall oak growing in the bank. The locality, I think, was first-rate. When the severe weather came I covered the back of the bee-house with bast mats, three thick. The roof was thatched first with straw, then with heath. On the boards in front was nailed a *very thin* covering of heath, so that the sun's rays should have little power on the wood. An opening 2½ inches was left in front for the bees to pass in and out. Was this a good house? When building it, my lad, whose father has kept many bees, said, "I don't think they 'll do any good in it, Sir." "Never mind, George, let us try," I replied. One of Mr. Waterers's foremen, a very intelligent, clean, tidy fellow, happened to pass one day when we were at work. "Don't make a hive-house, Sir, bees do better in the open." "I mean to try, Clark, and see." "Well, Sir, *I* have tried and always found they are better in the open air." On I went; my house was finished; closed in *front*, open at the *back*. In March, a gentleman who

has eight or ten hives, told his man and my boy, to pick out the best hive and take it to me. I believe I had a good hive. It never swarmed. In June I had a swarm put into a common straw hive, and after a time the old hive I found empty. I fancy it had joined the new swarm. In a short time after I had a swarm put into a Taylor's wooden amateur's bar-hive. This did well, and afforded, to my pupils and myself, much information, and, I hope, admiration for the wonderful insects. This spring a cottager came to see me, and he told me I was all wrong with houses. His words were—"Take it all down, Sir, if you love your bees. I built one, I pulled it down, and will never have any more. I know many who have done as you, but they never do any good in houses." I took his advice, and already find my bees more active. They carry in quantities of pollen. I inquired of the last man how to keep out wet, and the great heat of summer. "Cover the hives with turf sods, the grass next the hive, and dirt and roots up to the wind and rain." This I did with the straw hive. Taylor's is as usual. So much for my house. Now to my box In your little book, "Bee-keeping for the Many," the first page, the fourth line, "Bee-houses of all kinds I very much dislike, many hives are ruined by them," &c. Nowhere does my letter lead any impartial reader to think Mr. Taylor was "opposed" to open stands. I say "Mr. Taylor *recommends* houses." I remembered Mr. Taylor's remarks on houses "open in front and closed behind," when I built my house and acted accordingly. "Mr. Payne says wooden hives are apt to give dysentery, unless well ventilated." See my letter in the last volume, page 401. Turn to the little book of Mr. Payne, page 22. "Where wooden boxes are used ventilation cannot be too much insisted on," &c. Again, page 33, "It has been my practice, for some years, to give all the ventilation possible to my stocks in *boxes*," &c. Also, at page 50, "In hives of wood, I have always found it necessary during the winter months to withdraw one of the slides at the top of the hive, &c." Then, at page 53, "I have never yet found that hives made entirely of straw require any ventilation," &c.

Now, let your readers who are really interested in bees, read all these passages from Mr. Payne's book. I have not quoted the full article, though it bears out my point better than what I have now said, because I have a respect for your valuable space. Therefore, I again state, from my own experience—not much, I will admit—"wooden hives are apt to give dysentery to bees, unless well ventilated."

In Mr. Taylor's book, fifth edition, page 154, he gives a drawing of a ventilating condenser; but now where can I find particular attention called to the ventilation of wooden hives, as in Mr. Payne's little work? Nowhere do I say "Mr. Taylor says not a word on dysentery." But I say "Mr. Payne says wooden hives are apt to give dysentery to bees unless well ventilated. This I find too true, though Mr. Taylor says not a word on this subject." What subject? Ventilation of wooden hives or dysentery is apt to come to the bees.

The "Old Bee-master" quotes part of my letter, and thus distorts what I say, as a certain nameless one quotes Scripture. I shall not trouble you with any further remarks on this subject, but trust in fairness you will publish my reply as you have done this unfair attack on—A Young Apiarian, *Bagshot*.

The Cottage Gardener does not come to Bagshot till Wednesday, and I do not get it till Friday or Saturday, or you should have heard from me before.

SUBSTITUTES FOR POLLEN.

Acting on the hint thrown out by "An Old Apiarian," I procured some rye flour, put a little on a shallow plate, and placed it before my hives, but it failed to attract attention. Laid the plate on the landing-boards with no better success. Caught two or three workers, rolled them well in it; they flew to their hives, seemingly far from pleased with their dry bath. Had a great shaking and dressing before entering. Put a little honey in the centre of the flour. This they speedily licked up, but did not touch the rye. I then threw the plate below the nearest hive-stand, pronounced it humbug, and walked off. Chancing to pass the following morning, I observed the drifting rain of the night had bespattered the flour, and at the moment a bee was about to take wing with her thigh-baskets heavily laden. I thus accidentally discovered the omission of "An Old Apiarian," subsequently supplied.

I gave them a fresh instalment *damped*, which they quickly appropriated, and every mild morning since are hovering round the spot awaiting its arrival. I have tried it within the hive both at the top and below, but find they much prefer to gather it abroad. The flour must not be *wet*, but merely *damped* as much as will cause the particles to adhere together to allow of its being carried off.

From after experiments I found that bees will at this season gather up greedily and carry to their hives the flour or meal of the following grains:—rye, barley, peas, beans, wheat, oats, Indian corn (yellow and white), linseed, and rice. From having placed the different sorts side by side, I would say they give a preference to the four first named, but are not over particular, as arrowroot, potatoe-starch, and even ground oilcake will disappear.

Finding my bees so readily carry home these substitutes, my only fear is they may do so to an extent in excess of their wants; as this pollen gathering is, according to Gelieu, the weak point in their characters. He observes at page 74, "Bees lay up useless hoards of it, which they go on augmenting every year; and this is the only point on which they can be accused of a want of that prudence and foresight so admirable in every other respect." Supposing a surplus in the comb and its effect in flavouring or colouring the honey, I would recommend feeding exclusively with rye or wheat flour; the former preferable, the latter generally too fine ground.—A Renfrewshire Bee-keeper.

LIGURIAN QUEENS—AN APPEAL FOR ASSISTANCE.

Messrs. Neighbour & Son, of 149, Regent Street London (through whom, I understand, the Ligurian bee was first introduced to our notice), has favoured me with an extract from a recent letter of M. Hermann's, in which, after referring in a liberal manner to my undertaking the artificial multiplication of Ligurian queens, he says—

"The greatest part would yet prefer to write to me, and pay two times more to have an original. Also Mr. W., to succeed, must buy, perhaps, some other colonies to keep the race. Then he must have Italish wax (*rayons*), perhaps they are greater than the English, and I can send him such at a schilling the □'. To succeed he must have 200."

As far as I can understand the meaning of the foregoing passage, M. Hermann intends to say that I shall not succeed in the artificial multiplication of Ligurian queens, owing to my hives being furnished with combs fabricated by the ordinary species of bee, whose cells are smaller than those made by the Italians. However this may be, I cannot say that it has caused me any misgivings. I am satisfied that none of the Ligurian queens sent me by M. Hermann were at all larger than our English queen bees; and as I have proved that Ligurian workers can be bred in the cells constructed by the common species, I believe that when elongated and converted by the bees into royal cells they will be sufficiently capacious to accommodate full-sized Italian queens.

I am quite uncertain as to what is meant by □'. If it denotes a single cell I fear 200 at an expense of £10 would not add much to my chance of success. Whatever the real difficulties may be, I shall endeavour to surmount them; and in the event of a failure, which, however, I do not anticipate, shall not hesitate to publish my ill-success.

In the meantime I confess to a deficiency which I fear may embarrass my efforts to disseminate the new species—I am very short of guide-comb. As this is a want which many apiarian readers may be able in some measure to supply without inconvenience to themselves, I venture thus publicly to ask for assistance from all such as may be disposed to aid me. It is not necessary for my purpose that the combs should be quite clean; if bred in for a single season they will still be very useful, whilst drone-comb will be particularly valuable. Offers of assistance will be highly appreciated, and may be addressed direct to—T. W. Woodbury, "A Devonshire Bee-keeper," *Mount Radford, Exeter*.

OUR LETTER BOX.

Hamburgh Hen (*T. H. G.*).—She is of the Golden-spangled kind. If you buy our "Poultry Book for the Many," price 6*d*., you will there find engravings of all the principal feathers.

Spanish Fowls (*Alfred Heath*).—We know that Mr. Davies won first and second prizes at Liverpool, and that the two pens were claimed at £100 each, but we have no means of knowing, or of ascertaining, the composition of the pens.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	APRIL 24—30, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
24	Tu	Cyclamen europæum.	29.669—29.611	55—42	S.E.	.12	47 af 4	9 af 7	33 11	3	2 1	115
25	W	St. Mark. Princess Alice born,	29.835—29.673	56—36	E.	.33	45 4	11 7	morn.	4	2 12	116
26	Th	Rhamnus catharticus.	30.067—30.045	67—44	S.W.	—	43 4	12 7	26 0	5	2 22	117
27	F	Ribes spicatum.	30.025—29.704	52—43	E.	—	41 4	14 7	5 1	6	2 31	118
28	S	Fritillaria meleagris.	29.545—29.494	55—46	E.	.08	39 4	16 7	36 1	☽	2 41	119
29	Sun	3 Sunday after Easter.	29.787—29.688	67—42	S.W.	—	37 4	18 7	59 1	8	2 49	120
30	M	Tulipa sylvestris.	29.843—29.770	47—40	E.	.12	35 4	19 7	18 2	9	2 57	121

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 59.6° and 36.7° respectively. The greatest heat, 81°, occurred on the 28th, in 1840; and the lowest cold, 18°, on the 24th, in 1854. During the period 138 days were fine, and on 93 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Keep the ground forked up, or well stirred, amongst growing crops, and lose no opportunity of destroying slugs. *Beet*, sow for a full crop towards the end of the week. *Cucumbers*, sow for ridges, and throw grass mowings, leaves, dung, &c., into a heap to ferment; to be turned over occasionally until wanted for use. *Capsicums*, repot the plants of the larger variety intended for turning out next month; harden them off when they have taken fresh roothold. The smaller sort, commonly called *Chilies*, to be potted in rich soil as they require it, and to be kept in a stove or forcing-house. *Celery*, some of the earliest sowing that had been pricked into boxes may now be planted in a frame: no artificial heat will be required, but the light must remain on in cold, wet weather. Prick out the successional sowings. *Haricot Beans*, sow as advised for Scarlet Runners. *New Zealand Spinach*, sow in heat, for transplanting fn May. *Peas*, continue to earth up and stake as they advance, forking up or otherwise loosening the ground between the rows after the staking is finished. *Scarlet Runners*, sow on well-prepared and dry ground. It may be as well to sow only half the quantity likely to be required, and the remainder a week hence; for should the weather prove cold and wet, they may not vegetate well in cold situations so early. *Rhubarb*, sow seed to produce roots for forcing. As soon as the seed-leaves of the *Cabbage* tribe appear, sprinkle soot or wood ashes over them, to prevent the attacks of insects; to be frequently repeated until the plants are an inch or two high.

FLOWER GARDEN.

Search carefully over the Rose trees for the grub or maggot, and kill them; syringe the trees frequently, to destroy the aphides. *Mow* if the grass require it, rolling the ground first to obtain a level surface for the scythe. Part *herbaceous plants* at the root when it is required to propagate them by offsets. *Auriculas*, to be removed from the frames as soon as they begin to show colour to a shaded and sheltered situation, and placed under hand-glasses, which, if sufficiently large to cover nine pots, will be found most convenient. *Chrysanthemums*, the plants in pots not wanted for propagation to be planted out on borders. *Carnations and Picotees*, to be placed, if possible, in a sheltered spot until a more genial change of weather takes place; watering, if necessary, in the morning. *Evergreen* shrubs, remove all dead branches and shoots of last year's growth that have been destroyed by the late severe winter, and prune them into beautiful forms.

FRUIT GARDEN.

Look over all fruit trees on the walls, taking off with the finger and thumb all foreright shoots, and others that are not properly situated for laying in. With the *Apricots*, endeavour to distinguish those that are likely to form short fruit-bearing spurs, which should always be left. This backward spring *grafting* may, where it is desirable, still be carried.

STOVE.

Make cuttings of the stove stock, to be struck whilst the propagating-pits are at work. Continue to shift Gesneras, Clerodendrons, &c., and keep up a warm, moist atmosphere. Give air every day, more or less, when the temperature reaches 75°.

GREENHOUSE AND CONSERVATORY.

Camellias that have made their growth, and have formed their blossom-buds for the ensuing season, to be placed in a situation to get more light and air, and less humidity. Those plants that are now growing freely to be accommodated with a brisk, moist heat and air, slightly shading during bright sunshine with tiffany or netting. *Pelargoniums*, stake, and tie those that require it in due time. A slight shade is sometimes necessary when sudden changes from cold and dull to bright sunny weather take place.

PITS AND FRAMES.

Clear out some of the hardier bedding-out plants—such as Calceolarias, Verbenas, &c.—that have been under glass during the winter, place them in some sheltered situation where they can be readily protected in case of frost, to make room for some of the young stock potted off some weeks ago. If mildew appears put a stop to its ravages by dusting the plants with sulphur vivum. *Phloxes*, any of the choice sorts will readily increase by taking off the young shoots as cuttings when two or three inches in length. W. Keane.

NEW BEDDING AND BREEDING PLANTS.

What is the difference between saying "forget me not," and "never forget me?" If the thing were in the first attempt at letter writing, one might guess at the difference; but as I put it, the difference is more in the look than in the meaning. But the differences induced in the sentimental plant, the *Forget-me not* of our May day, and the *Myosotis scorpioides* of the hey-day of science, by the difference of locality, and of the circumstances by which it is surrounded, are greater than those of any other plant I know, take it either as a wilding, or as one of the pet blue plants of the fashionable planter of ribbon-borders. *Forget-me-not* clustering its tiny branchlets, of three or four inches in length, and its rough, ruggedly wrinkled, hairy leaves, stalks, and all, on the summit of a suburban rockery, and *Myosotis scorpioides* three quarters of a yard high, and as smooth as floss silk all over, in a muddy ditch down in the country, are seemingly two very different plants, but they are both the same, and so are all the other stages between the two in which circumstances leave or find it. And if there is a sentiment in science, or a law in logic, why should *Forget-me-not* of this side of the world not vary, and be very different from the *Never-forget-me*, on the opposite side, the *Myosotidium* of those who would never forget how useful it is to have flowers which come of themselves—that is, without forcing during the winter months?

The antarctic Forget-me-not was first noticed in The Cottage Gardener from a plant which was shown at an early spring meeting in Regent Street, three or four years back. It has been named *Myosotidium nobile* by Sir W. Hooker, or, as one might say, a tidy Myosotis. Mr. Standish, of Bagshot, is now selling it as fast as the orders come in, and I am earnestly requested to ask Mr. Standish for a few lines on its cultivation, which, they say, is most peculiar. I recollect putting it down, when I first saw it, as a plant requiring something of the same treatment as the *Cineraria cruenta*, the original of the present race. It was said to be from the Chatham Islands, and if the rest of the plants, natives of that group of Islands, were like this one, the climate of that group must be very different from the climate of New Zealand, the nearest to it, very much drier. A friend to the Experimental, who imports it direct, has sent a beautiful, large, healthy plant of it, which is doing remarkably well plunged in the shaded end of a cold pit, where the sun does not reach it till two o'clock in the afternoon. At bedding-out time this plant will be planted out as *Cineraria cruenta* used to be five and thirty years back—that is, in good, deep, moist, sandy loam, and more in the shade than otherwise. At the end of September, or early in October, that *cruenta* used to be taken up with good balls, potted, and slightly forced for six weeks, just like taken-up bed Geraniums at that time, more to get them fresh-rooted than anything else; but that degree of forcing set *cruenta* to bloom early in January, and sometimes before Christmas. Now, that is exactly how I mean to order the new "Never-forget-me," or *Myosotidium nobile*, to be treated in the Experimental Garden this summer, and for the conservatory next winter and spring. After blooming for two or three months in the dead of winter, *Cineraria cruenta* used to be cut up into pieces at the roots, the little bits potted and brought on as bedding plants are now in the spring, and at bedding-out time all *cruentas* were put out for the summer, and so it will be with *Myosotidium nobile*. If Mr. Standish does not say that way will not do at all, and tell us the right-doing-way, I shall certainly risk the Experimental plant as I say; and if I lose it, I shall blame Mr. Standish, and call on him to supply two more plants, if he does not put us all on the right scent at once.

The friend of the Experimental says, "I have imported it twice, first in 1855, all of which I lost, and again in 1858. The first from Stewart's Island, on the south of New Zealand, the last were obtained on the main land near Back's Peninsula. It is not hardy and is a very curious plant to manage." It will stand with *Farfugium grande* as an ornamental-leaved plant in winter, and early in spring it will produce large heads of Forget-me-not flowers, just like trusses of *Compactum* Geranium; and doing out of pots the whole summer, no doubt it will be much used, and the sooner we know all about it, the surer we may go to work on it.

The next greatest novelty which I recollect is one just in the same style of use—a plant as hardy as a Swiss *Rhododendron ferrugineum* or *hirsutum*, requiring much the same kind of soil and cultivation from May to the tail of the old year. Then this new forcing plant is taken up in lumps, just like taking a square turf-like lump from a bed of Lily of the Valley, put into pots or boxes, and then into a cold pit, where it will force of itself, and be ready to come into the conservatory very early in the spring. All that has been done under my own hand this last season; and now and for the whole of this spring it has been in bloom, and as beautiful a thing as ever I sent into the conservatory early in the spring. We had the same plant under review this time last year from a rev. gentleman in Kent, when I put it down as an early and excellent spring border plant; but in such a season as this, and indeed nine times out of ten, it comes too early for effect out of doors. But, like *Myosotidium nobile*, as it comes so early in bloom naturally, and as it can be cut up for pots safe as turfing, it is a most welcome addition for country gardeners, who are now-a-days to keep up as much bloom in-doors in winter as we all used to do out-of-doors in summer when I first began. Last summer, when the leaves of this early-blooming plant were ripe and ready to cut, the rev. gentleman very kindly ordered a large lump of the plant to be sent to the Experimental. It was, as I have just said, a square solid piece of roots and mould, four or five inches deep, over a foot wide, and about twenty inches long, and looking just like such a piece from a bed of Lily of the Valley, all the leaves being cut. For the rest of the autumn and till after Christmas this mass stood plunged in a border of sandy soil: then I took it up and planted the whole batch as it was, among my keeping Geraniums, in the cold pit. The heat of this cold pit was only from covering and the sun at odd times; but it was sufficient to force up the lovely *Epimedium colchicum, hirsutum*, and *pinnatum*, for it goes by the three names, and it has been in flower with me there the whole of this spring, and is, I believe, going to seed. It is on spikes about ten inches long, and from twenty to thirty flowers on a spike; and if there were a yellow Scilla with such a number of flowers on a spike, it would give an idea of this. The gentleman has crossed it with *macranthum*. I saw the cross, which is just intermediate. The bed where the block was cut from for me is of a very sandy moorland sort of peat, which seems to suit the plant better than anything else. Of course blocks, or lumps, or balls of *macranthum*, taken at the end of the autumn and put under glass, with or without heat, would be just as free and mostly as early to bloom as the yellow one.

VARIEGATED PLANTS.

The new bedding Dahlia which I saw and mentioned from the Crystal Palace Show last autumn is the best and newest on this list. It is a beautiful lilac flower, and the name is *Lilacina variegata*. It seemed to me the very best Dahlia of last year for ribbon-lines and centres of beds; the golden variegation was just like the *Golden Chain*. I have been in communication with Mr. Dodds, of Salisbury, about it, so as to be quite sure of its "properties" for bedding purposes; and he sent me the best proof—the leaves of this spring's growth just as variegated and as yellow as those of last autumn: it will soon be as fashionable as *Zelinda*. And the best one to come in between it and *Zelinda* is *Orb of Day*, a very constant and pure yellow dwarf bedding sort—the best bedding yellow Dahlia yet out; it is not more than two feet high. The old *Zelinda* first, then *Orb of Day*, and the third the variegated *Lilacina*, would make a telling background to any ribbon-border; or planted the same way in a bed, and an edging of *Flower of the Day* Geranium round it, would be equally good. *Alba multiflora* (Turner), is one of the best white bedding Dahlias; and if any one chooses a row of it instead of the yellow *Orb of Day* it would do. But white Dahlias are not so good in ribbon-rows as in beds; and *Vesuvius* is the best scarlet Dahlia for beds, and should run behind *Lilacina variegata* on a ribbon-border.

Gazania splendens is in all the catalogues which have been sent to me this season, and will be used this year all over the country; and all that I have to say of it is, that it is a front-row plant of the very richest yellow, either for bed or ribbon-border, or as a single bed by itself, and the nearest match-bed for it is *Œnothera macrocarpa*.

Mr. Kinghorn's *Christine* Geranium I have said is the best of all the breed of *Lucia rosea*. I shall have it this season next the *Golden Chain*, on the ribbon-border; but my plant is more dwarf, being the *Victoria Rose*, but there is no other difference between it and *Christine*. I have seen the new scarlet, *Sheen Rival*, by Mr. Kinghorn. It is the best scarlet of all his seedlings, and I have traced the *Crystal Palace Scarlet* to the terraces at Sydenham. It is just what I said of it all along, and

out of 60,000 scarlets which will be out on the said terraces this season, "poor *Tom Thumb* will hardly find a corner."

Mr. Gordon, of these terraces, not he of Chiswick, has succeeded Mr. Eyles, and we are to have his style of planting next. At the Crystal Palace perhaps you might have seen, for the last two or three years, a man with a spade going about on these terraces, and looking the very picture of a Lord Chancellor discriminating, but you did not know what. He was pulling out the rogues, however, by the ears with that very spade. *Tom* was then ticklish, and got himself poked into the beds here and there among the *Trentham Scarlets*, and when that happens the intruder is called a rogue in nursery and garden language, and is dealt with accordingly. How that was is thus explained.

Mr. Inch, who is now gardener near Greenwich, was at Trentham, in the flower garden, and hence took cuttings of this master scarlet to Sydenham in 1855; but being not then in the propagating department, his *protegé* got mixed with *Tom Thumb*, and it took a couple of years to part the two before I could detect my old friend and favourite in 1858.

The new grass carver, Mr. Summers, who now advertises this superior bedder, was one of the very men who allowed *Tom* and *Trentham* to mix in the propagation at the Palace in 1855. From there he went to Forest Hill, and got his mother to send him up, from Devonshire, whole lumps of native Ferns from where he used to be bird's-nesting, and took prizes with the same at the Crystal Palace; and nothing would do but his pals, at mixing the *Toms*, must go and see how his mother packed the Ferns. And so it was, when they got there, that he had lots of *grossulariæfolia* Geraniums—the very ones I mentioned last autumn as being pincushioned by Mr. Eyles. Of course, they must have some cuttings of this *minimum* Geranium to take back to the Palace, and, of course, also, they must pay for them in kind, and the kind most coveted by our *pilifera* friend, was this very *Trentham Scarlet*. The bargain was struck, and both parties struck their respective cuttings. That was how that pincushion-bed, and this new superior scarlet came to be heard of by the readers of The Cottage Gardener; and if Sir Joseph Paxton had not been awake to the move, and so dropped his *Tom Thumbs* from his private garden, and took the *Trentham* instead, we of the Experimental might have cock-crowed, as being the first to adopt the improved scarlet, next after the retainers of the Crystal Palace authorities; but now all who can afford it will have it, and we may cackle, and "poor *Tom*" must go the way of all the rest.

But wait a bit. I sent another on the same journey last autumn which will take the shine out of many, but not out of this one, or any other known scarlet,—for it is a carmine flower, the first of that rich tint. I have not yet seen the catalogue in which it is described by my agents, the Messrs. Henderson, of the Wellington Road Nursery, but my name for it is *Carmine Nosegay;* it is not quite so strong as *Tom Thumb*, and would make a row between *Tom* and *Imperial Crimson*. Most of the catalogues speak well of *Imperial Crimson*, but I only saw in Mr. Stark's catalogue, from Edinburgh, much account of the *Model Nosegay*. I was told that Mr. Pince, of Exeter, said last year it was the best Rose Geranium he had ever planted. That is just where it will end, but it is still one of my own principal breeders. The seedlings of *Model Nosegay* by the pollen of *Imperial Crimson* are still retained in the Experimental Garden for particular beds, and there are two match beds of the *Model* to be planted this season; but then we know exactly the kind of soil,—of poor, light, deep, sandy soil,—which will set it all a-bloom with very little growth. Again would I remind young cross-breeders not to cross a Geranium or a Pelargonium that is not fully established in a pot or in the soil at the time, and whenever they begin to be too leafy out of doors to cease crossing them.

The month of July is the best time in the year to cross bedding Geraniums out of doors, as by that time the check from turning out is past, and the succulency from night dews is not yet come. My best breeder for this year was planted at the end of last September, on Harry Moore's plan, four plants in a box, eighteen inches long, a foot deep, and a little more than a foot wide. It is tarred inside and out, and no sort of manure is in the soil, only the very best yellow loam, lightened a little with Cocoa-nut refuse instead of sand. I use it just in the same proportion as sand in all my pots. I planted out a row of breeders after that first frost in October last, on a west border which is covered with glass, and the soil as light as possible. The glass will be off when the frost is over, but the breeders will never get too rank, or gross, or succulent there, and they must be watered the first season when the weather is long dry; but they, too, are to be on Harry Moore's plan till they are too big or too much out of date for my purpose. D. Beaton.

ROCK GARDENS.

In arranging the grounds of villa gardens of some extent, it is almost always desirable to introduce some root or rockwork, with the view of contrast and variety, and also for the cultivation of those ornamental and very interesting plants which can only be seen to advantage in such a place. Such are the dwarf Helianthemums, Cisti, Ferns, Lycopods, and many others.

In distributing the materials it is extraordinary to see the great difference produced by artistic skill, as compared with unartistic arrangement; and it is also astonishing to see the large masses of small stones which may be heaped together without producing any striking effect.

There is no greater error committed, I think, than the one so often perpetrated, of making large mounds of rockwork close to a mansion, having the expression of high art in all its features. But I do think that the features of rockwork occurring in quiet and secluded natural recesses are charming, and it is surprising how much the effect is heightened by the grouping together of some two or three large boulders in such places. There are instances of this at Chatsworth, and at Ashridge, which are worth the study of the amateur landscape gardener. While the effect produced by the aggregations of large blocks of stone at Sion House, is very fine.

Let me here advise those who wish to create a grand display, to work with effective materials, in the shape of very large blocks. For it is difficult to convey, by any amalgamation of small rubble, the expression of unity which a larger block gives.

In forming rockwork care should be taken that the materials all partake of the same character; and, perhaps, the prevalence of scars on a rocky bank is one of the best subjects for imitation. The late Duke of Marlborough formed one of this kind at Blenheim, at the end of the lake there, which was one of his *chef d'œuvres*, and it is at this day much admired.

We, too, often see mounds of rockwork introduced in places where they do violence to the surrounding objects. They would be much better in such places by themselves.

We would make an exception where the rockwork is secondary for its effect, and is tolerated solely to afford a fitting growth-place for plants. Here it is less important as to its picturesqueness. But, wherever introduced in retired walks, it should be of massive proportions, and appear to be a natural production.

Water is ever beautiful amongst rocks, and we would advocate its introduction always where possible. It is lively, bursting out from the side of rocks, and playing from stone to stone, sparkling in the bright sunlight, or beaming bright and silvery in the moonbeams.

The materials used by many persons in the formation of rockwork are various, and often very incompatible. We have seen a mixture of scoria, flints, pieces of rough stone, broken vases, sculptured animals and birds, broken plinths and mouldings, representing, when put together, the rubbish of a ruined city; and having been formed into a mass, they have been planted with Saxifragas, Sedums, Erinus, Arabis, and other plants, which have soon concealed the most expressive forms of these varied objects.

We remember to have seen at the great Laurencian villa, Grecian vases set upon pediments of rough flints, which is much

in a parallel with the use of broken classical ornaments in rude rockwork.

We have glanced at a few of the strange modes of procedure in forming rockworks, let us now offer our advice to those purposing to do so. In the first place, determine exactly the scene which you would like to create. Secondly. Take care to have fit and proper materials for its accomplishment, for without this precaution all your efforts will not succeed. If you use small materials, you may pile for ever, but will not produce a mass, but only an aggregation of globules.

Spiral-shaped trees are very effective, such as the Cypress. Yuccas also look remarkably well. Ferns, if planted in a bed of peat, will here luxuriate, while the Hypnum Mosses will be beautiful. The double-flowering Furze is a beautiful plant, and for a back the scarlet-flowering Thorn.

It would, perhaps, be saying too much to insist on your rockery being in a dell; but if such is in existence pray form it there. There it will be an appropriate episode, its rough pinnacles and projecting points will not clash with the more quiet beauties of the smooth shaven lawn with its classical vases, fountains, and arcades. But it will be a most agreeable contrast to them—a whole in itself, and add much to the variety and intricacy of your place.

Those who may contemplate the formation of such rockeries would do well to pay a visit to Devonshire, the lanes there give ample instructions and lessons on the stratifications of the rocks—lessons which may be learned with much advantage; and the picturesque, and, in many instances, grotesque rocks which lie scattered over Dartmoor give the most finished illustrations of grouping those immense blocks. Henry Bailey, *Nunekam.*

ABIES WILLIAMSONII.

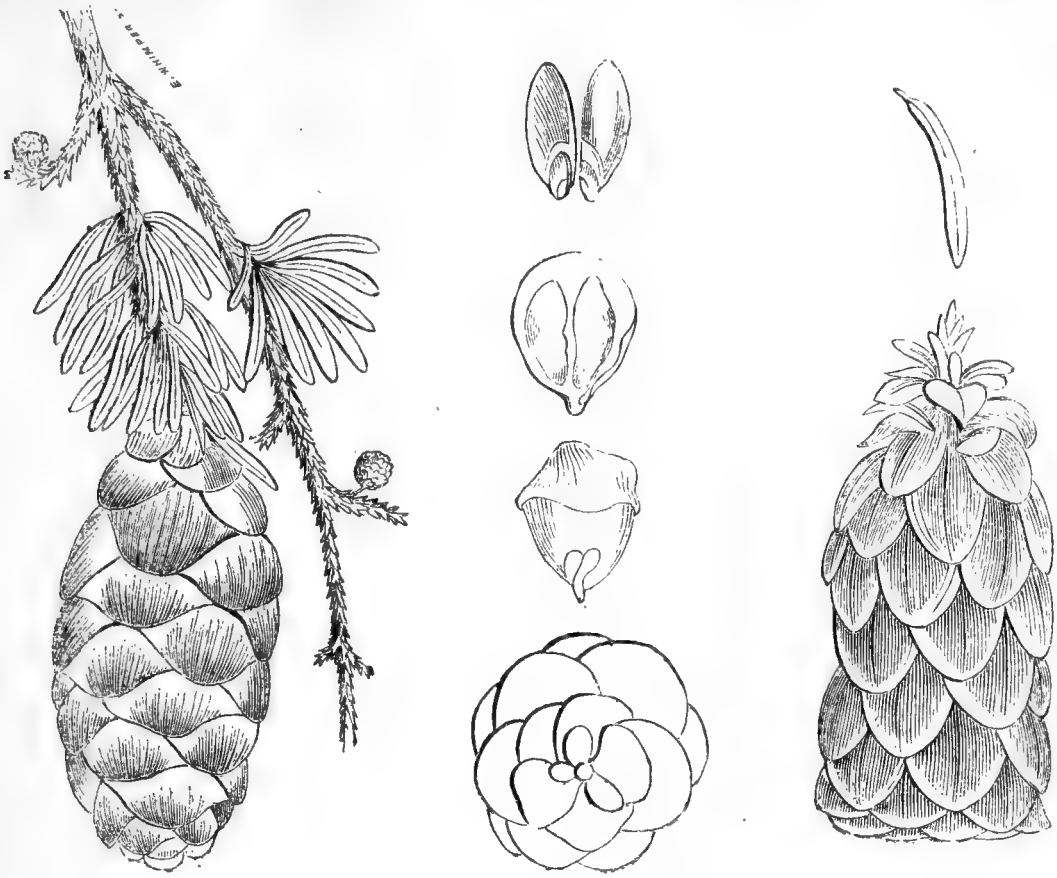
We consider ourselves fortunate in being able to present our readers, this month, with a drawing of this beautiful new hardy Conifer, from a sketch made by the artists connected with Lieutenant Williamson's late expedition to the Pacific. The specimen which our engraving represents was growing in the Cascade range of mountains, between latitude 45° and 46°, near the Columbia river; and as it grows in company with *Picea amabilis* and *P. grandis*, which stand out hardy in Mr. Sargent's grounds at Wodenethe (North America) and other places, there can be little doubt of its proving entirely hardy here.

Dr. Newberry, the botanist who has described and named it, speaks of it as being one of the finest of the genus. It is the most Alpine of all the Firs, growing near the region of perpetual snow. Its usual height is about one hundred feet, with an irregular spreading, and remarkably graceful habit. The annexed cuts exhibit the botanical characters of its leaves, cones, scales, seed, &c.

The following is Dr. Newberry's description: "A tree of large size and alpine habit; leaves short, acute, compressed, with a lenticular section. Cones pendant, long ovoid, acute, 1½ inch long, purple while young, when old cylindrical or somewhat conical, with a flattened base; scales rounded, entire, large, in old cones strongly reflexed, except at the base of the cones; seed small, ovoid, black, wings elliptical, entire, pellucid; male flowers in small, nearly spheroidal small heads."

We find that in some English works they speak of *A. Williamsonii*, or *Mertensiana*. But this is evidently a mistake, perhaps originating in the Edinburgh Philosophical Journal. Bongard, the

Russian botanist, who named and described *A. Mertensiana*, gives Sitka as its locality, many miles further north than *A. Williamsonii* grows, and speaks of it as having reniform scales; (*Strobili squamis reniformibus integris*), a striking distinction, besides many other points of difference.—(*American Gardener's Monthly.*)



CULTURE OF CHINESE PRIMULA AND GLOXINIA.

"Ashton" wishes to know when seeds of Primula and Gloxinia should be sown, and the peculiar treatment the plants require.

I presume that the Chinese Primula with its various shades of colour, is what is referred to. In a previous volume a good deal of useful information will be found on the various sections of the hardier Primrose family, but many of which are difficult to manage, except by amateurs who feel a zest in the pursuit. Some people think it manly to decry the labours, and what they call the crotchets of the keen florists; but the skill and attention to minutiæ, and the unwearied diligence bestowed on florists' flowers and upon many little beautiful alpine plants now becoming rare in collections, ought rather at all times to command the approbation of the lovers of the beautiful. The Chinese Primrose has also received frequent attention in these pages, but a few hints thrown together may not be unacceptable at the present time.

1st. *Times and modes of Sowing.*—These should be regulated according to the period at which it is desirable to have the plants in bloom. To flower early in winter, say November and onwards, the seeds should be sown from the middle of March to the end of April. A hotbed will be useful for raising the seedlings. Let a pot be well drained and filled to within an inch of the top, with sweet, sandy loam, and a little heath mould, if comeatable. Press this down not over firmly, and then water it well, and allow the pot to stand for at least twenty-four hours, until the surface is getting dryish, then sow the seeds. Cover slightly with fine earth of a light sandy character, press this covering gently, cover the pot with a square of glass, and plunge the pot for three parts of its height into a temperature of from 65° to 75°, the heat of the atmosphere of the bed averaging from 55° to 65° at night. A piece of paper may lie over the square of glass until the seedlings begin to appear.

I mention these minutiæ as so many safeguards against failure, not but that success may be obtained though they be wholly or partly neglected. Thus the securing of moisture in the soil of the seed-pot, and yet a dryish bed for the seeds to be in, provides them with a sufficiency of moisture for germination, without waterings to any extent; and the dryish surface, and the rather dry, slight covering pressed neatly over the seeds, prevent any chance of the seeds rotting from excess of moisture.

Again: The square of glass placed over the pot prevents that moisture freely evaporating; and this, again, is so far prevented by the shading of the paper until germination has taken place. In all such seed sowing, and especially when the seeds are small, as in the case of Gloxinias and Calceolarias, it is advisable to water as little as possible until the seedlings are fairly up. There is also a reason why the square of glass should be large enough to cover the whole of the rim of the pot. In all old gardens, insects, such as woodlice, are generally numerous enough, especially about hotbeds and pits, where dung or leaves, &c., are used as a heating medium. Though constantly destroying vast numbers of these gentry, and thus keeping them down, allow them access by a small cranny to some very young seedlings, and what you saw as green specks to-day, you may never have the chance of beholding again. This is one reason why seedsmen are blamed, when the fault lies with the gardener and the insect enemies he has to contend with. Even this spring I sowed some very small seeds in a slight heat in a pit, and being next to certain that the seeds were good, I was surprised that nothing came in a number of pots. I found the squares of glass were too small to cover the top of the pots entirely. A full grown woodlouse, or *slater*, as I called them in my younger days, might be able to press up the edge of the glass, and thus get in; but I have never found them do so, nor yet trying to get into a pot from the hole in the bottom. If the crock is placed on the hole with its convex side downwards, so as to cover the hole thoroughly, that, and the entrance of worms, too, would be prevented. Plenty of drainage above that convex crock will prevent all stagnation of water. In cases of great nicety, a bell-glass should be used instead of a square of glass. For want of such contrivances, I have known pots of seedlings of such things as Primulas, cleared in a night by woodlice, slugs, &c. This is one reason why, when these squares of glass are used, I recom-

mend the pots not to be filled to within an inch, or even a little more, from their tops. Even when the glass is removed during the day, to give plenty of air to the young plants, it may be returned in the evening, until they become too high to allow that being done, and by that time they will have ceased to be such tender sweet morsels to their many enemies. I must add to this digression, that in the case of the seeds referred to above, and that seemed so many failures, when sown again in smaller pots, so that the surface was completely covered with the glass, the seedlings have come thick enough, showing conclusively that the error was in the treatment and not in the seeds.

2nd. *Soil.*—Just as in sowing, so in growing, I prefer a little heath soil and silver sand to be mixed with more than a double quantity of sweet sandy loam; and then, as the plants get older, substituting very decayed, but sweet, well-aired leaf mould or cowdung for the heath soil. As simplicity is always desirable, I may mention that I have never had better Primulas than when grown in sweet well-aired soil, scraped from the ridges of a kitchen garden, a flower-bed, or a ploughed field, taking the opportunity of collecting the mellow surface when nice and dry after being turned up and exposed to the frosts of winter. This, with a little decayed leaf mould and pure sand to sharpen it and keep it open, will grow in perfection most of our common flowering plants.

3rd. *General treatment.*—By the time the seedlings are rising from half an inch to one inch in height, prick them out four or five round the sides of a four-inch pot, keeping the plants well up to the sides, and leaving in this case the centre of the pot the hollowest, in order to receive the water that is necessary and thus avoid spilling it on the young foliage. This also should be avoided when watering the seed-pot by modes frequently referred to. When these little plants begin to touch each other give them a small pot each, and keep them, if not in a hotbed, still under glass, with air in plenty when growing, and protected from very bright sunshine. When the pots are filled with roots, shift again into four-inch pots, keeping the plant well up in the centre; and in watering taking care that the water is not poured on the leaves, and still less on the collar of the plant. When these pots are filled, shift into pots of six or seven inches in diameter; and if the pots are still kept under glass, they should have air on night and day, and be shaded from bright sunshine. A frame with a high back set to the south would be a good place. At the end of August, and during the most of September, I would prefer the plants standing on boards on the north side of a wall or hedge, with a free circulation of air all round them, but care being taken to defend the plants from anything like heavy rains. These plants should be housed by the beginning of October; and if kept near the glass, and a temperature not often below 45° given to them, they will bloom freely for most of the winter. However fine the colours of the kinds may be, if placed far from the glass, or at all shaded, the flowers will come thin and bad-coloured. In all shiftings care should be bestowed on ample drainage; and if that is covered with a little moss it will be all the better. For the last shifting, a little dried old cowdung mixed with the soil will help to give strength; but fine massive trusses of flowers will be best secured by giving weak manure waterings as soon as the flowering-pots are full of roots, and the flower-buds begin to rise. Very fine heads of bloom can thus be grown in six-inch pots, but very good shows can be obtained in four-inch pots, and when anything extra is required larger pots may be used; but if these are wanted for early blooming, the sowing should also be early. Old plants may have the earth shaken from the roots like a Geranium and kept on, or may be cut up and struck as cuttings; but seedlings generally make the best plants.

A good medium time for early and late spring blooming is to sow in June and July. At this time, a cold frame or pit will be useful for sowing in. If the pot is covered with a glass, it will just be all the safer. Some sow as late as August and September, but in order to do well, they must be grown well all the winter. The young plants, whatever time sown, may be brought on in a cold frame under glass, with plenty of air given to them. It will scarcely be worth while to place them out of doors. Though they cannot have too much air, yet the plants dislike the bright sun of autumn. As soon as the dark, short days come, the plants cannot have too much light. A few of the strongest plants of the June sowing might have six-inch pots in October, and be expected to bloom after Christmas. The most of these will be best in four-inch pots, standing on an airy shelf in the greenhouse fully exposed to light until the new year is past, when a shift may be given them. Younger plants may thus also get a start forwards. These plants generally grow with great rapidity in the late autumn and the early spring months. Again I would repeat, that though disliking full sun in summer, they rejoice in it in winter and spring.

Gloxinia Seed requires rather more heat to bring up the seedlings nicely, and a higher temperature to grow them to perfection. Use equal care with the preparing of the seed-pot, and, if possible, have heath soil for nearly the half of the compost; cover with the slightest sprinkling of fine sandy soil, and press it down slightly. If you have any doubts about making that covering slight enough, just press the seeds slightly on the mellow surface soil, and cover and shade until they vegetate. A small pinch of seed will generally give you a vast number of seedlings: these, even when very small, if very thick, are apt to damp off in the seed-pot, even when it would be next to impossible to get a hold of them individually. In such a case, even when the plants are not one-sixteenth of an inch in height, prepare some pots as if for seeds, and lift the seedlings with a dibber like a lady's bodkin, and transplant them in little tufts or patches—say half an inch apart. This will prevent the damping and the shanking. Place these again in the sweet hotbed, and cover with the square of glass. When these patches get larger they may again be divided, or the plants may be singled out separately an inch or half an inch apart. When these meet give them a small pot each, and put them again in the hotbed or on the stage of a hothouse. Shift again as soon as the pots are full; and for this season it would be as well to be content with four or five-inch pots, which, when full of roots, you may expect the plants to throw up plenty of flowers in the autumn. When these begin to decay, and the leaves to lose their rich verdure, and the days are too short to give them enough sunshine, then gradually curtail water. By-and-by, collect them in a corner where they can get all the sunlight possible, and gradually altogether refrain watering; and when the leaves are withered, collect all your plants, and place them anywhere out of sight, where the temperature will not often be below from 45° to 50° at least, and keep the soil dry about the tubers until you wish to start them with heat and moisture as early as you like the following spring. Such plants will bloom early in spring and summer. If any seedling appears extra good in your estimation, take off some leaves, and stick them with the stalk end downwards by the side of a small pot in sandy soil, and place in nice bottom heat, and tubers will be formed which will make nice plants next season. If wishing to make the most of it you might cut the leaves into little pieces like bits of ribbon or tape, and one end of these inserted in sandy soil, and the other left out, and all covered with a bell-glass, and then kept in a sweet heat, you may have ever so many tubers of a favourite plant for next season.

As already stated, for seedlings and very small plants I prefer having heath soil and sweet leaf mould as a component of the compost, along with sandy loam, though the latter and leaf mould will grow fine plants. As the plants get older and fine summer blooming is desiderated, sweet dried old cowdung should be added sparingly to the compost, and weak manure waterings at a temperature not below 75° should be copiously given as wanted. They do best in the close, moist atmosphere of a hothouse. They do not do well in a greenhouse, even in the hottest months, unless its character is changed and made close by diminished air, and shade also given. If grown in a hotbed of fermenting matter, care must be taken, by air night and day, to prevent all steam or accumulation of damp unwholesome vapour, and never to permit the sun to shine on the foliage when damp. Shading will also be necessary in the heat of the day. If, from neglect, the foliage becomes browned or spotted, the flowers will be deprived of all their elegance. R. Fish.

CASTS OF FLOWER-POTS.

In a reply to one of your correspondents, "M. A. E.," we think you were likely to mislead the inquirer and your readers, for to complete a cast of thumbs we only give sixty pots.

In noticing this we do not arrogate to ourselves the position of dictating to the trade, but simply to show that it is not a prevailing custom to give eighty pots to a cast of thumbs. As far as we know, sixty pots for a cast of thumbs are universally, in the London potteries, recognised as the proper complement.—J. & W. Adams, *Pot Manufacturers, King's Cross.*

FOOTMARKS ON SPERGULA PILIFERA.

I have been told by a gentleman who has seen the *Spergula pilifera*, that if walked upon in frosty weather, every footmark is, and remains, visible. Do you know if this is so, as it may be much against its general utility?—W. H. B.

[The footmarks will show on Spergula as they would on grass, but no more, till such time as the young growth appears.]

THE SCIENCE OF GARDENING.

(*Continued from page* 25.)

To promote the production of blossoms, and the maturity of the fruit they engender, is the usual object of stopping, pruning, and training—confessedly three of the practices requiring most judgment in the gardener's art; for if the branches are too much reduced in length or number, or are unfavourably trained, the development of leaves is induced, and the production of blossom as proportionately prevented. The reason for this has already been explained; and in these pages, devoted to the science rather than the practice of gardening, little more can be added than a few hints upon the subject.

Stopping is the practice of removing a part of the leading end of a shoot during the season of the plant's growth, and *pinching* is merely destroying during the same season the leading bud. Both practices are performed by the finger and thumb.

It is not to make a fruit tree more bushy that we stop the robbers, as we call the strongest shoots, but to stop the current of the sap, and so force it into the weaker branches, which are seldom stopped at all. When it is necessary to stop all the shoots on a plant, the weakest ought to be first stopped, in order to get them stronger, and is easily shown on a common Laurel. Take a branch during June with two young shoots—the one very strong, and the other a weak one; stop the weak one, and allow it to push two or three eyes into leaf; then stop the strong one, and before it can break again, the shoots on the weak one are grown, and able to draw on the sap more than those which are merely breaking bud on the stronger shoot. Then, suppose we leave only two shoots to come from the weaker parent, and four or five shoots on the stronger, the balance of strength is restored in a month, and you have six shoots of equal, or nearly equal, strength; but if you stop the strongest first, and allow it to break into three or four fresh ones before you stop the weak shoot, these three or four having the start of whatever the weakest shoot will give out, they will keep a-head to the end of the season, if they do not starve the weaker and later shoots altogether. If we could *stop the growth* of the strong shoot till such time as the weak shoot was nearly as strong as the first, and then let them both go on equal terms, all would go on well: but we cannot stop growth one moment in the growing season—the right season for stopping; for as soon as we "top" a shoot, if only by breaking a bud, the next buds below will yield to the force of the rising fluid or sap immediately, and many of the summer practices are founded on this knowledge; as, for instance, a Rose-bud of last autumn is now a one-shoot plant, and very apt to be blown over by the wind or other force; but stop it at the top, and out it branches in ten days, and will soon make a compact round head. Those who neglect to take advantage of this, may get one shoot from a bud up to three feet in length; but what is the good of that? they must be cut down to four or five eyes next winter; and it will be next year before a head can be had. Almost all nurserymen spoil, or lay down the foundation for the ruin of Peach and Apricot trees, by leaving the original bud to form one gross shoot the first year, instead of stopping it when it is nine or ten inches long, and take five shoots from the next start for wall trees, and four shoots only, and of equal strength, for pots and orchard-house work.

We pinch and stop the shoots of our fruit trees in June, and throughout the summer, whether they are grown against a wall, or as dwarf standards. We take off one-third of a weak shoot, only one-fourth if of average strength, and merely the point if it be strong. The upper bud on each usually breaks again, but this is of no consequence, and we stop these secondary shoots by breaking them off entirely. This stopping promotes the production of blossom-buds, and fruit-bearing spurs, according to the mode of the tree's bearing.

The season for *pruning* must be regulated in some degree by the strength of the tree; for although, as a general rule, the operation should not take place in deciduous trees until the fall of the leaf indicates that vegetation has ceased, yet if the tree be weak, it may be often performed with advantage a little earlier, but still so late in the autumn as to prevent the protrusion of fresh shoots. This reduction of the branches before the tree has finished vegetating prevents the mere increase of length, and directs a greater supply of sap to those remaining, and stores up in them the supply for increased growth next season. If the production of spurs is the object of pruning, a branch should be pruned so as to leave a stump; because, as the sap supplied to the branch will be concentrated upon those buds remaining at its extremity, these will be productive of spurs, though otherwise they would have remained dormant, it being the general habit of plants first to develope and mature parts that are furthest from the roots. It is thus the Filbert is induced to put forth an abundance of young bearing wood, for its fruit is borne on the annual shoots; and similar treatment to a less severe extent is practised upon wall fruit.

In pruning evergreen trees and shrubs cultivated for their foliage, the operation should be performed just when growth has commenced in the spring, for this induces the production of more vigorous and more numerous shoots.

Pruning, however, may be justly divided into three kinds—*Summer* or *Growth-pruning*, which we have just considered under the head of *Stopping*; *Root-pruning*, which we dwelt upon whilst writing about the roots of plants; and *Winter* or *Rest-pruning*, on which we will make some further notes.

So far as the Science of Gardening is concerned, it has to be practised for the following objects:—

1. The admission of more light.
2. Relieving oppressed trees.
3. Furnishing blanks.
4. Inducing spurs.

1st. *Admission of Light.*—That the removal of a portion of the shoots, or branches of a tree, will enable the remaining portion to receive a greater degree of light, is self-evident. A free and equal admission of light tends to produce an equality in the branches, and, by consequence, equality in the character and size of the fruit; for in trees totally unpruned we may often see a few fine fruit just at the extremity of the branch, whilst the remainder, especially the interior, is crowded with produce deficient both in size and quality. The free and equal admission of light also tends to produce solidification of the wood, and thereby to promote healthiness of habit—one step, assuredly, to size and quality of fruit.

2nd. *Relieving Oppressed Trees.*—If, through overbearing, general debility, age, canker, or temporary loss of power, through removal, or any adventitious circumstances, trees evince weakness, pruning judiciously performed is a certain relief, and very frequently a permanent one.

3rd. *Furnishing Blanks.*—This, indeed, with regard to young trees especially, is one of the most important ends of *rest-pruning*. The chief misfortune is, that in attempting to carry out neat systems of training, much sacrifice of wood, which would otherwise prove of fruitful character, is too apt to be made. This, indeed, is almost inseparable from a systematic course in the earlier stages of the tree; still a judicious course of "summer-stopping" and timely training will save many a twig, which otherwise falls before the hand of the "*rest*" *pruner*. Whatever be the course pursued in regard of summer management, rest-pruning should be resorted to with trees of all ages, when and where deficiencies exist. The pruner, in this case, may merely remember that a tendency exists in most free-growing shoots (on young trees especially) to lengthen, and that it very frequently serves the cultivator's purpose much better to cause one strong shoot to branch into four or five subordinate ones; this the rest-pruner's knife can accomplish under ordinary circumstances.

4th. *Inducing Spurs.*—One of the most important offices of *rest-pruning*, and in carrying out a dwarfing system, needs to be practised annually on many of the long shoots of young and free-growing trees, until the side-buds are made to develope in some degree.

Pursuing this subject, we have from Mr. Beaton these further suggestions of practice combined with science:—

"If you stand before a young tree, about six feet high, and see one or more of the side-branches much stronger than the rest, with their ends more upright—showing plainly that they, too, would be leaders in time, as much so as the centre and true leader—science teaches that if the top, or tops, are merely cut off or stopped, the ascending force is divided, and the leading character is lost, from that hour, to those shoots. But science may be at fault for all that; and practice alone must guide the

pruner as to which of four buds to cut to. If you take the point of a shoot, and bend it to you, there are eyes, or buds, on the upper side of it, also on the under side, and on the right and left sides as well. Now, the question is, to which of these buds is the shoot to be cut to; and to that science cannot direct you, at least not to three of them, science being based on fundamental rules. If you understand it, you will never cut a side-branch, in any tree or bush, to a bud directly on the upper side of it; because it is natural, or fundamental, that the top bud left on the upper side will either take the lead, or, by growing inwards, crowd the distance between it and the stem or trunk of the tree. A pruner may work to get more flowers, more fruit or timber, or he may only want a more regular disposition of the branches; but none of these can be had by crowding them: still there are three more chances in the three buds left out of the four; but as science does not go by chance, it cannot tell which of the three buds is the right one to cut to. If you cut to a bud on the under-side of the shoot, that bud will make a shoot that will grow outwards; and if there is room in that direction, that is the best way for it to grow: but, suppose there is another shoot which occupies, or which will soon occupy, that space, then your causing a new one to grow in that direction will crowd that part; therefore, cutting to an under-side bud, in such a case, is manifestly wrong.

"Let us now take a bud on the left side of the shoot, and cut to it. This also may be right or wrong, as it happens. A leader rising from the left side of a shoot will grow more to the left than the shoot itself would do were it not stopped; and if that left side is already better furnished than the right side, there will be more crowding than need be; and it is just the same on the right side of the branch.

"This teaches us to stop an aspiring leader to lessen its force in that direction; never to stop it to a bud on the upper side of it, and to be guided to the right bud to cut to by the rest of the branches; choosing the bud on that side where they are less crowded, and so, by directing a new growth to the more open part of the head, balancing the whole more equally.

"I put the question, which is the root and foundation of all pruning on this footing, because, in nine cases out of ten, in general pruning, it stands just as here set forth; though never, or but in very rare cases, in pruning a forest or timber tree; for exceptions, take a pillar Rose. If one of them, or one out of every hundred of them, were to be led up with one central stem, like a forest tree, the chances are that it would get bare at the bottom, some time or other; and if it did, there is no other shoot to fall back upon, or rather to cut back, to furnish the feathers to the ground; therefore, the safest plan is to have two, three, or more leaders, for the centre of a pillar Rose, and, in pruning the side-branches from them, we meet with exceptional cases to that of not pruning back to a bud on the upper side of a timber tree. We want the pillar to rise as fast as practicable, after furnishing side-branches enough to form the body; and if we always avoided the cut to an opposite bud, we might have more for the body of the pillar than was really necessary, and not enough of upright growth to carry on the height in proportion. In such cases, if we are sure of sufficient side-branches, it is always best to cut back to a bud on the upper side of all the topmost branches. On the other hand, if we take the case of fruit trees trained against something, or of flowering plants merely, trained the same way, and find that the young wood from the main branches is too strong for our purpose, we prune back to a bud on the under side of the shoot, because a shoot from such under-bud is never so strong as one from the upper side."

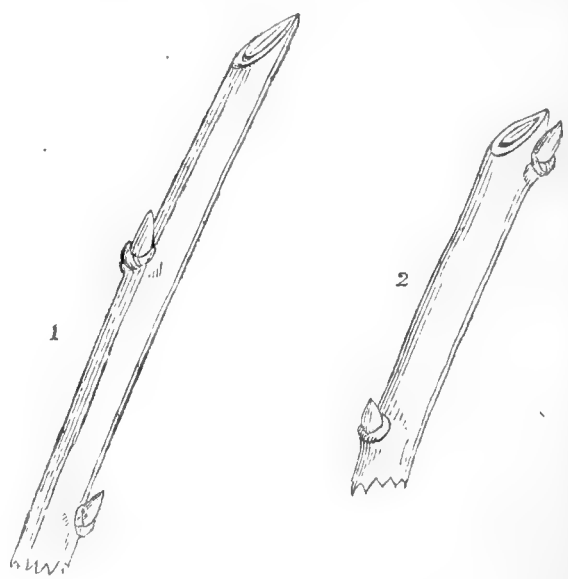
Another maxim is this—pruning will add very much to the size and weight of a great variety of fruit, by confining the energies of the parts next to the fruit, for that very purpose, instead of being expended in making more wood; but all the pruning we can do, except in very rare cases indeed, will not add one inch, or one ounce, to the size or weight of a tree, although more than half the pruners in the world believe to the contrary.

The next step in pruning, after stopping buds and aspiring leaders, is a process which every gardener and forester puts in practice every season. Let us suppose a common case: A young, healthy tree, six or seven feet high, is removed from the nursery, and is planted along the boundary line of a villa garden, where it is intended for a screen more than for its timber; and let us say that the first three feet of it from the ground are without any branches, then a thick head of branches, with all the large ones about the same size, and none of them seeming to vie with the leader, which is freely setting off without a rival—just such a tree as one would select out of a whole nursery row. When this tree begins to make a free growth after planting, the pruner comes round in the winter to see that all is right; he finds no necessity for the first step in pruning-in this tree—namely, to stop a too-forward branch, for there is none of that class.

Then follows the second step in pruning—to see that the branches are not crowded in any part of the head; and the third step, that of cutting away the lowest tier, should never be taken until the second step, that of thinning the head, was accomplished. Therefore, when we know that too much pruning at one time hurts a tree, if the necessary thinning happens to require more than the value of two bottom tiers to be removed, the third step should not take place at all that season. A tree taken thus early should be so managed to the last day of its life as that no branch need be cut from the main trunk of more than one inch in diameter. A wound made by such a cut will be healed over by new wood the first season, and leave no blemish in the wood.

In pruning the shoots of a tree it is not a matter of indifference where the cut is made. All wounds die back, more or less, after winter pruning; those of young shoots more so than those of older wood; therefore, when you cut close to a bud—say about the end of October, Nature cannot heal that wound till new wood is formed next June or July; and in this long interval it is almost certain that this close wound will cause the wood to perish immediately under the bud, so that if it starts at all, it will only make a weak shoot, and the next bud below it will become the leader, and thus derange the shape of the tree at once. A Vine shoot, a Cherry, Currant, or Raspberry, or, indeed, any soft shoot with a large pith, cut in that way late in the autumn, would be certain to kill the bud near it.

In summer, prune close to a bud, as in *fig.* 2, in order that there may not be any snag to prevent the wound healing over immediately; but in winter pruning, cut from a quarter of an inch to an inch in advance of the bud, as in *fig.* 1, to prevent



the wound from destroying it; and by making the cut on the same side as the bud is on, you give a greater length of living wood beyond the bud, without increasing the length of the snag; and by cutting on the opposite side from the bud, the snag may be the same length as in the other case, but the living wood beyond the bud will be lessened, according to the angle of the cut.

In all gardens and nurseries, cutting off snags left at the winter pruning forms a chief item in summer pruning.—J.

(*To be continued.*)

RABY CASTLE FLOWER GARDEN.

The flower-garden plan published in The Cottage Gardener of the 3rd instant, was designed by me, and very probably the other plans also, which were with that subjected for your inspection (were I to see them I could easily recognise them if they are mine). These gardens were laid out by me when acting in the capacity of foreman to Mr. Roberts, at Raby Castle, about sixteen years ago. The square beds from No. 36 to 42, were, as Mr. Beaton rightly judged, a second addition by some one,

but that one was certainly not me, for I had formed a continuous border the whole length of the garden, backed by a row of Hollyhocks. This border had in it three recesses in which were placed three rustic chairs. I was perfectly aware at *that* time of the faults of the beds 8, 9, 10, and 11, but I thought I would put them in, for they appeared (to my eye *then*), to give a finish to the centre bed.

When asked to make the plan above referred to, I endeavoured to have the space of ground extended in breadth, so that the garden might form a square, and I made a plan accordingly, but was denied permission, because the encroachment would be too much upon the culinary department; but, notwithstanding, that plan was approved of by a little "altering:" therefore I had to curtail it at the sides to its present shape and size, so as to fit the ground first allotted to me.

I have transformed the plan since to a circular one, and it makes a better garden than a square or a parallelogram.

Some day, ere long, perhaps I may be allowed the pleasure of submitting to your judgment the flower gardens at Palace House, which are now in course of making.—John Evans, *Gardener to Jno. Moore, Esq.*

[We shall be obliged by your sending the plan of the gardens.—Eds. C. G.]

HARDINESS OF HOLLYHOCK SEEDLINGS.

Last autumn I planted out ninety-two seedling Hollyhocks, raised from twelve named varieties. They had no sort of protection during the winter, and there are now eighty-one healthy plants. The eleven plants which died were the produce of *Queen of the Whites*, and as these were all I had of that variety, it would seem to be a tender one, or, at any rate, not hardy enough to stand such a winter as the last entirely without protection. With eleven kinds out of twelve, however, it would appear that "coddling" is worse than useless. I should be glad to hear whether any of our great Hollyhock growers can confirm my experience in this matter.

The old plant of *Cerise Unique* Geranium, mentioned by me in a back number under the heading "Proliferous Geranium," has just sent up a truss of leaves, from the centre of which a truss of flowers is rising.—R. B. P.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page* 44.)

PLUMS.

Washington (*Bolmar; Bolmar's Washington; Franklin; Irving's Bolmar; Parker's Mammoth*).—Fruit large, roundish-ovate, with a faint suture on one side. Skin of a fine deep yellow, marked with crimson dots, and covered with grey bloom. Stalk three quarters of an inch long, inserted in a wide and shallow cavity. Flesh yellow, firm, juicy, sweet, and pleasantly flavoured, separating from the stone. Shoots downy.

A handsome plum, suitable for the dessert, but better adapted for preserving. Ripe in the middle of September.

Wentworth. See *White Magnum Bonum.*

White Bullace (*Bullace*).—Fruit small, round. Skin pale yellowish-white, mottled with red on the side next the sun. Flesh firm, juicy, sweet, and subacid, adhering to the stone. Shoots downy.

A culinary plum. Ripe in October.

White Damask (*Damas Blanc; Damas Blanc Gros; Damas Blanc Hâtif Gros*).—Fruit rather below medium size, roundish, inclining to oval, and swollen on one side of the suture. Skin greenish-yellow, covered with white bloom. Stalk half an inch long, stout. Flesh sweet, pleasantly flavoured, and separating from the stone. Shoots smooth.

A culinary plum. Ripe in the beginning of September.

White Damson (*Shailer's White Damson*).—Fruit small, oval. Skin pale yellow, covered with thin white bloom. Stalk half an inch long, slender. Flesh yellow, sweet, and agreeably acid, adhering to the stone. Shoots downy.

A culinary plum. Ripe in the middle and end of September.

White Impératrice (*Impératrice Blanche*).—Fruit medium sized, oval. Skin bright yellow, covered with very thin bloom. Stalk half an inch long, inserted in a narrow cavity. Flesh firm and transparent, juicy, sweet, and separating from the stone. Shoots smooth.

A dessert plum, requiring a wall, and ripening in the beginning and middle of September.

White Magnum Bonum (*Askew's Golden Egg; Bonum Magnum; Dame Aubert; Dame Aubert Blanche; Egg Plum; Grosse Luisante; Impériale Blanche; White Mogul; Yellow Magnum Bonum*).—Fruit of the largest size, oval, with a rather deep suture extending the whole length of one side. Skin deep yellow, covered with thin white bloom. Stalk an inch long, inserted without depression. Flesh yellow, firm, coarse-grained, with a brisk subacid flavour, and adhering to the stone. Shoots smooth.

A culinary plum, highly esteemed for preserving. Ripe in the beginning of September.

White Mirabelle. See *Mirabelle Petite.*

White Mogul. See *White Magnum Bonum.*

White Perdrigon (*Brignole; Maître Claude; Perdrigon Blanc*).—Fruit medium sized, oval, narrowing towards the stalk, with a faint suture on one side. Skin pale yellow, strewed with white dots, and marked with a few red spots next the sun. Stalk three quarters of an inch long, slender, inserted in a small cavity. Flesh tender, juicy, rich, and slightly perfumed, separating from the stone. Shoots downy.

An excellent plum for drying and preserving. Ripe in the end of August.

White Primordian (*Amber Primordian; Avant Prune Blanche; D'Avoine; De Catalogne; Catalonian; Cerisette Blanche; Early Yellow; Jaune de Catalogne, London Plum; Pickett's July; St. Barnabe*).—Fruit small, oval, narrowing towards the stalk, marked with a shallow suture. Skin pale yellow, covered with thin white bloom. Stalk half an inch long, very slender, inserted in a small cavity. Flesh yellow, tender, sweet, and pleasantly flavoured, separating from the stone. Shoots downy.

A very early plum, but of little merit. Ripe in the end of July.

Wilmot's Early Orleans. See *Early Orleans.*

Wilmot's Green Gage. See *Green Gage.*

Wilmot's Late Orleans. See *Goliath.*

Wilmot's Orleans. See *Early Orleans.*

Winesour (*Rotherham*).—Fruit below medium size, oval. Skin dark purple, covered with darker purple specks. Stalk half an inch long. Flesh greenish-yellow, agreeably acid, and having red veins near the stone, to which it adheres. Shoots downy.

A very valuable preserving plum. Ripe in the middle of September.

Woolston Black Gage.—Fruit about medium size, round, and marked with a shallow suture. Skin deep purple, almost black, strewed with small dots, and covered with blue bloom. Flesh melting, juicy, sugary, and rich, separating from the stone. Shoots smooth.

A dessert plum of excellent quality. Ripe in the beginning of September.

Yellow Apricot. See *Apricot.*

Yellow Gage (*Gonne's Green Gage; Little Queen Claude; Reine Claude Petite; Petit Damas Vert; White Gage*).—Fruit below medium size, round, and marked with a shallow suture. Skin greenish-yellow, thickly covered with white bloom. Stalk half an inch long, inserted in a pretty deep cavity. Flesh yellowish-white, firm, rather coarse-grained, but sweet and plea-

santly flavoured, separating from the stone. Shoots smooth.

A dessert plum of second-rate quality. Ripe in the beginning and middle of September.

Yellow Impératrice (*Altesse Blanche; Monsieur à Fruits Jaune*).—Fruit large, roundish-oval, marked with a suture, which is deep at the apex and becomes shallow towards the stalk. Skin deep golden yellow, with a few streaks of red about the stalk, which is half an inch long. Flesh yellow, juicy and melting, sugary and richly flavoured, and adhering to the stone. Shoots smooth.

An excellent dessert plum. Ripe in the middle of August.

Yellow Magnum Bonum. See *White Magnum Bonum*.
Yellow Perdrigon. See *Drap d'Or*.
Zwetsche. See *Quetsche*.

LISTS OF SELECT PLUMS,

Arranged in their order of ripening.

I. FOR DESSERT.

July Green Gage	Abricotée de Braunau
Peach	Jefferson
De Montfort	Kirke's
Denniston's Superb	Topaz
Perdrigon Violet Hâtif	Coe's Golden Drop
Green Gage	Reine Claude de Bavay
Hulings' Superb	Cooper's Large
Purple Gage	Late Orleans
Transparent Gage	Coe's Late Red

II. FOR COOKING.

Early Prolific	Victoria
Early Orleans	Diamond
Gisborne's	Autumn Compôte
Goliath	Belle de Septembre
Prince of Wales	

III. FOR PRESERVING.

Green Gage	Winesour
White Magnum Bonum	Damson
Diamond	Autumn Compôte
Washington	

IV. FOR WALLS.

July Green Gage	Italian Quetsche
De Montfort	Coe's Golden Drop
Green Gage	Blue Impératrice
Purple Gage	Ickworth Impératrice

V. FOR ORCHARDS AND MARKETING.

Early Prolific	Victoria
Early Orleans	Pond's Seedling
Gisborne's	Damson
Orleans	Coe's Late Red
Prince of Wales	

(*To be continued.*)

A REMARKABLE IVY TREE.

The fantastic forms which this creeper is wont to assume when it covers some gnarled old pollard, or takes possession of the trunk and limbs of some dead old tree, cannot but have attracted the attention of every one conversant with rural scenery. But there are also times when it assumes a symmetrical as well as a grotesque shape; and when it does so, no artistical or even mechanical skill can find room for improvement. An object of that kind formed an important ornament to the grounds here, until it was destroyed by the high winds of 25th February ast. It consisted of a perfect cone sixty feet high; the bottom diameter about eighteen feet, and the top ending in a point; the sides being as nearly in straight lines as the most fastidious mechanist could wish for; and the whole a dense mass of the deepest green, excepting at the season when the berries showed more prominent. It is needless to say that this fine object was not formed by its own unassisted powers to assume the shape it then was, for it had a Larch Fir tree of considerable dimensions for its foundation. This tree the Ivy by its rude embraces killed about fifteen years ago, the said tree having been in a death struggle for some years before, the Ivy eventually strangling it. All its branches had fallen off long ago, except two or three at the very top, which no one seemed willing to venture to remove; and strange to say, that, although they were at their bases surrounded by Ivy, the latter did not seem the least disposed to twist round them—in fact, for many years the yearly growth of this Ivy was not more than a few inches over the whole of its numerous rounded tufts or spurs. These rounded tufts gave the cone the appearance of being moulded into a number of heads when viewed against the horizon; but these heads, being so regularly placed, rather added to than detracted from the uniformity of the object. In the distance it looked somewhat like an immense Cypress cut into shape, it being more truly tapering than even the Spruce or Silver Fir becomes, and more dense than the best specimens of *Cryptomeria Japonica*, which is the only Conifer to equal it for a graceful tapering form: but, like every other fine object, it had an end. The noble Larch tree, killed, as I say, fifteen years ago, began to decay; and its load, increasing every year, whilst its power of supporting became lessened, the culminating point was reached, the support snapped in sunder with the high wind, and the mass fell to the ground to the regret of every one who had seen it; and even in its prostrate condition it was beautiful. The Larch tree where it broke in two was seventeen inches in diameter, and about eight feet from the ground.

It is somewhat singular that about nine years ago we lost a similar tree in exactly the same manner. Unfortunately, we have no others coming on that will equal the one we have lost for perhaps twenty years; but two fine trees are struggling with the Ivy that surrounds them, the latter showing unequivocal signs of mastery, the other less and less energy each returning spring. The situation is one evidently well suited to the Ivy, though at the same time favourable to the Pinus tribe as well; but we are obliged to remove the Ivy from such trees as it is advisable to encourage, otherwise Ash, Oak, Elm, and other trees would have to succumb to this universal favourite.—J. Robson.

FLOWER SHOWS AT THE CRYSTAL PALACE.

The schedule of prizes and the rules for the next May exhibition have been sent to us. In these rules a new principle is introduced for flower shows for the first time in England, by which any individual, whether a nurseryman, an amateur, or a gentleman's gardener, may compete for all the prizes in any one class of plants, or for all the plants, at a whole exhibition, for which prizes are offered. The amount of prizes at the May show will be £531 7*s.* 6*d.*, and the judges have the power to increase them in certain cases.

The next step has been to sap the new principle at the spring, and make it inoperative. Ambition is not allowed to buy a collection of plants, or four collections of each class of plants, the day before the show, and take the prizes for them on the morrow. Therefore a nurseryman may step in and take all the prizes—say in Orchids, or Azaleas, or Heaths, or in the collections of stove and greenhouse plants, according to his stock in trade; while superior single collections in various hands are thus virtually excluded from competition, and from the eye of the public. This seems to us altogether against the spirit in which the improvement of gardening was conceived by means of competition; as it may happen that a private gardener may dread the powers of a nurseryman for competing against him for a second or third prize with a superior small collection of plants, and thus the public lose the benefits resulting from competition. But there is a principle on which ambition might monopolise all the prizes at a show, and still bring forward before the public all the results of keen competition.

It is argued thus:—Ambition goes farther than money with some men, and money is all in all to others. Give both classes an opportunity of gratifying their taste at these shows, and the public are sure of seeing the best efforts of gardening before them. Let ambition buy up the plants of ten exhibitors the day before the show, and take the prizes for them on the morrow. The value of the prizes enhanced the value of the plants, and the ten men have had their reward with less risk to themselves. The prizes are, therefore, as much at the roots of the improvements in growing plants as if they were awarded to ten exhibitors instead of to one. But the results of competition cannot be obtained if you tie the hands of ambition by requiring it to have the plants in its own keeping for the last two months. Therefore there are

two antagonistic principles involved in this schedule from the Crystal Palace which can never work smoothly, although a good deal might be said in favour of both.

There are four classes of stove and greenhouse plants, and four prizes in each class, beginning with a collection of twenty plants, for which £25 are offered; then twelves, eights, and sixes, the prizes for which amount to £136, and one man may compete for the whole sum. For variegated plants in collections of twelve, four prizes, value £17. Orchids in collections of sixteen, ten, and six, and four prizes for each, and the value £105. For greenhouse Azaleas, £57. Heaths, £24. Tall Cacti, £11. Roses, £37. Pelargoniums, £38; or, with £2 for seedlings, £40. Cinerarias, £6 10*s*. Twenty-four cut Tulips, £4 10*s*. Twenty-four cut Pansies, £3. New or extremely rare plants, £11. Miscellaneous, £4 5*s*. Ferns, none. The rest of the prize-money goes to the fruit.

HORTICULTURAL SOCIETY.

A Special General Meeting of this Society was held on the 17th instant, at the house of the Society of Arts, John Street, Adelphi, Rev. L. Vernon Harcourt, V.P., in the chair, when the following candidates were elected Fellows: — Mrs. James Alexander; Harry Chester, Esq.; Mrs. Chester; Mrs. William Henry Cole; Chesterfield Gayford, Esq.; George Goss, Esq.; Edward B. Green, Esq.; Hugh Hammersley, Esq.; Mrs. Hammersley; Rev. Francis R. Hepburn; Edwin J. M. Herepath, Esq.; Andrew Jardine, Esq.; Sir Raymond Jarvis; Sir Edmund Lacon, Bart., M.P.; Henry Langley, Esq.; Thomas Y. Learmouth, Esq.; Charles John A. MacLean, Esq.; Hon. Mrs. Maude; Mrs. Joseph Maudslay; Miss Isabel A. Maudslay; Miss Clara R. Maudslay; William R. Mitchell, Esq.; Captain Wm. Pixley; Mrs. Pixley; Robert Ellis Pixley, Esq.; Lieut.-General Sir George Pollock, G.C.B.; Lady Pollock; Dr. David Preston; Miss Emily Ricardo; Abraham Geo. Robarts, Esq.; William Scott, Esq.; Mr. John Salter; H. W. Segelcke, Esq.; Colonel Sidley; Major-General Sir S. W. Steel, K.C.B.; Edward D. Verner, Esq.; Mrs. H. B. Ward; The Lady Horatia Wardlaw; Edward Warwick, Esq.; Mrs. E. Warwick; Sidney H. Waterloo, Esq.; Mrs. L. Wight; Mrs. Brownlow Wynne.

The number of Fellows elected since January last amounts to 602.

THE VICISSITUDES OF SEASONS.

The present spring is of so strange and unusual a character that it deserves serious consideration as to its bearing on gardening affairs; and although my friend Mr. Bailey recently gave very sensible remarks on this subject, yet I must beg to offer mine, especially as touching its bearing on fruits. Everybody is but too conversant with the serious character of the past winter, the longest in a proper sense, perhaps, of any in our days. The effects and real character of such matters are, perhaps, seen better retrospectively than whilst passing. We now see it as a whole. There can be little doubt that all the accumulated warmth has been abstracted, even to a foot or more in depth, and the wet period we have gone through has so closed the pores, that any accession of atmospheric warmth must be trivial indeed in amount. Atmospheric warmth indeed! I feel disposed to blush, old as I am, to think of so libelling that all-valuable power, heat.

And what consequences may we expect from such protracted work? Let us examine the matter.

The general atmospheric coldness which we have experienced has, doubtless, been much enhanced by the coldness of the earth, which, instead of somewhat mitigating the cold air, has rather joined forces with it. Then we have the winds to consider. I do not know how other quarters have fared, but in these parts (Cheshire), I think we have not had three days free from wind, or those perpetual breezes which prevent the sun's rays heating the soil.

The bud of trees having been once excited by rest and warmth, is an impatient thing; and well it may be, for it has outgrown the coat made for it last autumn, and must either suffer or burst its bonds. We may, however, rest assured, that this effort at growth is not merely in consequence of a great and sudden access of sap from the root, but from the true food prepared the season previous and laid up for this very purpose. But the time soon arrives when a root action is absolutely essential, and this I fear will be much overdue this spring. Much will depend on the weather as to moisture: if the ground keep dry when an advent of warmth does arrive, the solar rays will soon insinuate themselves into every crevice, for they have very narrow shoulders.

Here I would caution our younger readers on the abuse (not use), of mulching. There are periods at which I will dare, unreservedly, to recommend it; but let us carefully distinguish. Every means, I contend, should be taken this spring to get warmth in the soil, and that speedily. To this end rather unload any extraneous matter not containing roots, and leave the surface as smooth as possible with an inclination outwards that water may be carried off. Let the fork remain idle, as to fruits, until the end of May, and let no one suppose that solid ground cannot receive the solar rays. Indeed, where mulching is practised, I have before suggested in these pages, and I repeat it, that the body of mulch would be better drawn from the surface soil of all tender fruits at the end of March of each spring—that is, where the mulching is of some thickness. Let not, however, mulching here be confounded with surface dressing. This has been carefully explained years ago in The Cottage Gardener. Mulching is good dung applied four inches thick to any needy fruit trees in June or July. It is not meant as a medium for the roots, but a screen to them, for trees may suffer with excellent soil beneath them, when their fibres are mainly near the surface. Surface dressing is applying a permanent medium, never to be disturbed, for the fibres to ascend in. This should not be applied more than two or three inches in thickness, and should be one-half loamy soil. This temporary removal of mulch is but small trouble, and it may be dug in the adjacent borders, and the trees receive fresh manure.

Now, we know that the spring is, as a whole, nearly a month behind the average of seasons. It may also be considered that the summer may be an untoward one, and the autumn premature. The wood of tender fruit trees requires a given period, or shall I say, amount of light? to attain that maturity which is the foundation of fruitfulness. Seeing, then, that such things are probable, we should adopt and practise with assiduity such measures as will facilitate the maturation of both shoots and spurs, so as to make the best of a bad season. Early pinching and early training are foremost in this affair—in fact, anything that will facilitate the admission of light to the true wood and the spurs.

And what shall we say about insects? My opinion is, that the marauders having had so long a nap, will awake "like giants refreshed," and will come down upon us locust fashion. Like the trees with whose movements their motions must necessarily be identified, they will lose no time. Therefore, whether I be prophetic or not, the subduing these pests may be strongly urged: it will be at least a step in the right direction. Insect extermination should in all cases be part of the gardener's creed, and although not always practicable on a large scale, let us make what advances we can to the goal. The worst of it is, that the majority of gardeners in country places are so pinched for labour that they cannot do what they would.

I fear this season will again punish the Quince-stock men as to their Pears. The precocity of this stock, indeed, is its greatest fault; and no gardener should trust this stock without a good moveable protection, and due attention likewise. I wish that some knowing person would give us a full list of all the Pears that will not do on the Quince. As it is, we are left to grope our way by slow experience, and our patience and pockets are both sorely taxed in this tardy proceeding. I have never in my days seen such a crowd of blossom-buds as our trees present; it is almost painful to me to look at them, knowing as I do that the succeding year is apt to run short in consequence. If it should happen that a great "set" of fruit is the consequence, there will be extra reasons for using the scissors freely.

R. Errington.

COLETIA BICTONIENSIS.

This very singularly growing shrub seems to be perfectly hardy; and its peculiar appearance renders it available for such prominent points as we sometimes see occupied by *Abies pygmæa*, clipped Box, Irish Yew, or other symmetrical features in a garden arranged in a mathematical form. This Coletia differs widely from any of them, it having more the appearance of one of the Opuntia tribe of Cactuses. The plant is of moderate growth, but very rigid. Its stem, of a pale glaucous hue, if cut across into sections presents everywhere a perfect cross; the wings, or portions forming this cross being as accurately joined together,

and in perfect straight lines the whole length—not the least spirally twisted, as most fluted or ribbed-stemmed plants are. In fact, this stem may be best compared to a lath about three inches broad, and a quarter of an inch thick, cut into rather deep notches on its sides. And if another such lath were prepared and split down the middle, and then two pieces fastened lengthways down the centre of the first piece, it would then (in section) be a perfect cross, which the Coletia really is; and it is also armed at each lobe, or serrature, with a strong spine. Altogether it is a singular plant. Its foliage is scarcely perceptible, and might easily be overlooked, it being not larger than the smallest flake of Wheat chaff and very thinly scattered over the stem. The flowers are white and are more interesting. The plant seems perfectly hardy, having lived the last three winters here (Linton Park, Kent), without protection.—J. Robson.

NEW BOOK.

The Gardeners' and Farmers' Reason Why. *Containing Reasons for the Principles of Scientific Cultivation applicable to Gardening and Agriculture.* London: Houlston & Wright.

This is worse than a worthless book, for it is not truthful. Its omissions are manifold, but, what is far worse, its explanations are for the most part erroneous; some few are only partly correct, and the very small remainder which are truthful are borrowed. Added to which a large portion of the contents is irrelevant, and another large portion would be totally worthless even if true.

We will quote a few passages to enable our readers to appreciate that our condemnation is justified.

"With *alumina* or *alum* all are familiar," page 3. They are not the same, the latter is a sulphate of the former.

"Chlorine united with soda makes our common salt," page 3. It does not do so, the chlorine unites with sodium, the metallic base of soda.

"Manganese is simply a dark-coloured metal," page 3. It is a whiteish metal; its oxide is dark-coloured.

"All substances in solution in a soil are absorbed by the roots of plants, exactly *as a sponge imbibes a liquid*, and all that it contains, *without selection*," page 13. This is directly contrary to facts established. Roots have the power of rejection; and such power is admitted at page 63, where it is stated that the Wheat takes up what the Pea rejects.

"Salts formed by the mutual action of acids and alkalies" —"Chlorides (chloric acid) of potash, soda, &c.," page 23. This is a tissue of error. Chlorides are not salts; nor are they formed by chloric acid, but by chlorine uniting to the bases of the alkalies mentioned.

"Chalk is lime united with carbonic acid and water. When burnt the heat drives off the carbonic acid in the form of carbonic acid gas, volumes of which may be observed ascending from the kilns." It is not so; the carbonic acid gas is quite invisible. The "volumes" when white are merely the water of the chalk vaporised; when dark-coloured the vapour is loaded with soot from the fuel employed.

"Why is Rape dust chiefly valuable to grain crops?" In the first place this is not correct; but if it were, the following reply would not assign the reason. "Because all green crops require a large supply of inorganic matter, which Rape dust is deficient in." Rape dust not being beneficial to green crops is no explanation why it is beneficial to corn crops.

"Why is sulphuric acid inferior to muriatic in the preparation of bone compost for Turnips?" In the first place, sulphuric acid is *not* inferior for such purpose, but if it were, the following is a totally unintelligible reply:—"Because it is stronger, cheaper, has greater specific gravity, and contains much less water," page 97.

"Why do esculents when manured with pig dung acquire a very disagreeable flavour?" page 121. This is not the fact, although stated by Professor Sprengel; and if it were, what is meant by its being owing to "a volatile excrement, at present imperfectly known?" So far from containing "but little ammonia," the dung of a fatting pig contains more than does the dung of the horse.

"Why are the excrements of pigeons and fowls more potent as manure than those of geese? Because the former live chiefly upon grain, insects, and worms, while geese eat largely of grass," page 121. This is only the proximate reason, not the actual cause of such superior potency. Pigeons' and fowls' dungs are more powerful fertilisers than the dung of geese, because they contain more ammonia and more of the salts beneficial to our cultivated crops.

At page 124 it is stated that "liquid manures" afford little benefit "to stiff soils," "because such soils generally abound in all the mineral matters which are required by cultivated plants, and also contain *an appreciable quantity of nitrogenised organic matters*, in comparison with which the fertilising constituents of liquid manures are altogether insignificant." This is one tissue of error, but we only quote it to observe that it is totally contradictory of what is stated at page 132, about urine, another liquid ammoniacal manure!

"Why is the urine of the horse less valuable than that of cattle as a manure? Because the nitrogen from the food is partly lost by *evaporation* through the skin, &c." On the contrary, the urine of the horse contains more than thrice the nitrogen that is contained by the urine of the cow!

"Why are the leaves of Dahlias, &c., often destroyed by frosts in valleys, but untouched upon surrounding eminences? Because *radiation* goes on upon the declivities of hills and elevated situations, and *the air which is condensed by cold*, rolls down and lodges at their feet!" Nothing of the kind; the radiation causes a far greater degree of cold to occur on the hills; indeed, the cold increases in intensity with the elevation, but the dryness of the air increases also with the elevation, and in dry air plants remain uninjured by far more intense cold than they do in moist air. Air is always moister in valleys than on the hills around them.

"Why is paleness of colour in a plant an evidence of weakness?" It gives no such evidence; for instance, the *Aucuba Japonica*, and the variegated Holly, both with leaves entirely or partly white, are among the hardiest and most robust-growing of evergreens.

"Why are the Melons of British growth defective in richness and flavour? Because, in the culture of this plant too little regard is paid to the development of the leaves." The two assumptions, want of flavour, and neglect of the leaves, will be rather novelties to our readers!

We have many, very many, more such errors and absurdities marked for exposure, but we have said enough to answer the only purpose for which we have noticed the book at all,—namely, to warn our readers from accepting it as an authority.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(*Continued from page* 36.)

CURING BACON.

Tastes differ as much in this as in anything. In some parts of England it is customary after the salting has been accomplished to smoke the bacon; and I have seen and tasted bacon that seemed to me to be spoiled by that operation. Such offensive materials were used in the fire as gave what I call a very disagreeable taste to it; and I would at any time as soon have bread smoked as bacon, the natural good taste of both being spoiled by it. I will therefore describe the manner of curing bacon in Northumberland, where they would as soon hang up any other of their articles of food in the chimney as the bacon. The pig having hung till cold (not frosted if possible), the head is cut off it, and the lower parts called the cheeks are separated from the bone and salted with the bacon; the backbone is taken out whole with a very little of the fat at the back with it, and the ribs are also taken out if the pig be a large one; if not, they are sometimes left in, or the shorter ones at all times; they are taken out with as little meat attached as possible, the side of the flitch being left smooth. Any bloody veins in the ham or shoulders are wiped out with a cloth; and the flitch, being turned with its skin side upwards on a table, is rubbed with salt in the hand for five or ten minutes, or until the salt runs away in a soft brine: it is then ready to put away, the other one and the cheeks being treated the same way. Generally these flitches are salted in the dairy, or cellar, or any other cool place. Some clean straw is laid in one corner and made into something like a bed, over which an old sheet of some

kind is laid. One flitch is then laid on this as level as it well can be, with its fleshy side uppermost, a little saltpetre is then sprinkled over it and afterwards salt, giving most to the thick parts, as the ham and shoulder. The cheeks are then placed on the belly and served the same, and they make the place level for the next flitch, which is laid upon it and salted as above; and, last of all, as much salt is stuffed under the skin of each leg as it will hold easily, and the ends of the cloth being folded over the whole, with any other old clean things to keep the air away from it. Nothing more is done until ten or twelve days, when it is uncovered and the top flitch is taken off and put at the bottom, and a little more salt given and covered up. It may remain ten or twelve days more; a large pig requiring nearly a month. They are then brought out and a piece of paper being wrapped round each shank end, a strong wooden skewer is forced through, to which a strong string is tied, and the flitches are hung up by both legs to the ceiling of the kitchen, their faces pointing to the fire, a smaller string is also fastened to the thin part of the belly; but this is generally tied backwards to keep this part straight, as tying it up seems to stretch the part to an inconvenient length. After hanging until they are dry, which may be two months, more or less, they are then coated over with a thick batter composed of flower and water to prevent the bacon rusting in summer; and sometimes it is in summer time carried and hung up in some dry, cool loft, where it is as much in the dark as possible. Sometimes, however, it is packed away in chaff, the best being the husk or shell of Oats that are made into oatmeal; but, in a general way, it is kept hanging up till wanted. If the pigs be well fed, the bacon cured this way is excellent. The quantity of salt used in the curing being about one pound to sixteen or twenty of bacon. Sugar or spice are seldom used. It is rarely, indeed, one hears of any badly managed. It is proper to observe, that the pigs are scalded, not by being put into a tub of hot water, but by having the water poured over them, the carcase lying on a bed of straw. Burning the hair would, doubtless, answer as well, but smoking ought to be strictly prohibited. J. Robson.

(*To be continued.*)

VARIETIES.

Phenomena of Gemmation.—Professor Huxley has read to the Royal Institution a paper giving a detail of the circumstances which have more particularly drawn the attention of naturalists to the aphides, or plant lice. Between the years 1740 and 1750, Bonnet, acting upon a suggestion of Reaumur, isolated an aphis immediately after its birth, "and proved to demonstration that not only was it capable of spontaneously bringing forth numerous living young, but that these and their descendants to the ninth generation preserved a similar faculty." Ample testimony has since been borne by others to the accuracy of these observations; indeed, it has been shown, "that under favourable conditions of temperature and food, there is practically no limit to this power of asexual multiplication, or, as it has been conveniently termed, 'agamogenesis.' The aphides thus produced are either winged or wingless, and are both viviparous and oviparous. The only organic operation with which this mode of development can be compared is the process of budding or gemmation, as it takes place in the vegetable kingdom, in the lower forms of animal life, and in the process of formation of the limbs and other organs of the higher animals: and the parallel is complete if such a plant as the bulbiferous Lily or the Marchantia, or such an animal as the Hydra, is made the term of comparison." These agamogenetic phenomena were long supposed to be isolated; but numerous cases of a like, and some even more remarkable, character, are now known. Among these may be cited the circumstances attending the production of the drones of bees, as described by Von Siebold in his work on True Parthenogenesis; and attention was also directed to the *Cœlebogyne ilicifolia*, the male flowers of which have never been seen, and yet for the last twenty years it has produced its annual crop of fertile seeds in Kew Gardens. Agamogenesis has also been found to pass by insensible gradations into the commonest phenomena of life. Some explanation has been offered on this remarkable subject; all, however, that can be said is, we have a few facts, but cannot yet understand even the simplest of them.—*Timbs' Year-Book of Facts*, 1859.

Beche-de-mer, or Trepang, an article of luxury among the Chinese, consisting of the dried bodies of several species of *Holothuria*, or Sea Cucumber, which are found in great abundance in the shallow waters of lagoons, and on reefs, from the south-eastern coasts of Asia to New Holland. The traffic in Bêche-de-mer is very extensive, and the Malays catch the animals, and prepare them in large quantities for the Chinese market. They are usually about eight or nine inches long, but some are two feet in length, and seven or eight inches in girth. They are often found nearly buried in the coral sand, their feathered tentacula alone floating above it. The larger ones are sometimes speared in shallow water; but most of them are taken by divers in depths of from three to five fathoms. An expert diver will bring up eight or ten at a time. They are split down one side, boiled, pressed flat with stones, dried in the sun, and afterwards in smoke, and packed in bags, in which state they are bought by the Chinese, and conveyed in junks to China. Fleets of Malay proas are employed in the search for this curious production of the sea. Macassar is the great staple-place of the trade, and from it above 8000 cwt. of Bêche-de-mer are annually sent to China, the price varying, according to the kind and quality, from thirty shillings to twenty guineas per cwt. There is also a considerable export of Bêche-de-mer from Manilla. Bêche-de-mer is extremely gelatinous, and is very much used by the Chinese as an ingredient in rich soups.—*Chambers's Encyclopædia.*

TO CORRESPONDENTS.

Botanical Labels (*A. Z.*).—These, printed only on one side, may be had of Mr. Pamplin, Frith Street, Soho, London.

Berberis Asiatica—Privet (*B. W. B.*).—The *Berberis Asiatica* is a fast-growing hedge plant of great merit; but it is no more of an ornamental character, when used as a hedge, than common Quick. We do not know where it is on sale, nor the price. The evergreen Privet is very nearly bare now in many places, and generally loses many of its leaves every spring.

Planting Tom Thumb Nasturtium—Tropæolum elegans (*A Subscriber*).—Plant *Tom Thumb* Nasturtiums twelve inches apart, and plants of *Tropæolum elegans* fifteen or eighteen inches. Neither of them will do well under shade.

Spergula pilifera (*Mrs. S. C. W.*).—Spergula roots very deep, but does not exhaust the soil one-tenth part so much as common Daisies would. There is no waterproof shading for plant-houses or pits, or anything more lasting than Frigi Domo.

Indian Corn (*A Very Old Subscriber*).—Indian Corn, or Maize, is best sown in a gentle hotbed during March, and the seedlings planted out at the end of May. You might try the plan now, but success is doubtful.

Sweet-Briar Stocks for Roses (*Amateur*).—Roses will bud on the Sweet Briar as fast as on the Manetti stock, and it is as good as this for a temporary expedient, but most Roses soon die on both, and there is the field Rose of our own banks, which is every whit as bad a stock for permanency. But if you are in need of stocks, you can use all the three, or any one of them, and work on them very low, and in transplanting bury the worked parts. Then the budded Roses will soon root there, and be on their own roots at last, as all dwarf Roses ought to be.

Piptanthus Nepalensis (*J. Crossling*).—It is a hardy deciduous shrub. Harden off the seedlings, and then plant them out.

Variegated Mint (*Carrig Cathol*).—Your specimen was the Variegated Mint, and it will grow in time, and in good soil, two feet high—say after two years' growth. The way of propagating the Pampas Grass which you mention, we do not think will succeed.

Flower-stand and Fountain (*Aquarium*).—We saw specimens for sale in the Oxford Street Bazaar, but do not know the price.

Pygmy Greenhouse (*A Lincolnshire Amateur*).—We should be very glad to assist you; but so far as we understand your plan your greenhouse would be just a large handlight, three feet square, with half of the sides of glass and the lower half wood, a square of that glass being moveable to admit moving and attending to the plants inside; the roof to be fixed, we presume, and slightly hipped, so as to have the ventilator in the angle between the sides and the apex of the roof. For such a small concern we would sooner have the top moveable entire. Such a glass case for tender things would be better in a room close to a window than out of doors. The Waltonian Case that Mr. Beaton gave an article on the other week would suit your purpose in this respect admirably; but then it would not be your own, and that might take away a good deal of the pleasure. We have no faith in a lamp put inside, if there is no funnel for the smoke and gases to escape. We would greatly prefer an earthenware bottle of hot water. To make such a thing very nice you should have a double floor for your miniature house, and then you could have a drawer to slip in and out in your wooden side, that drawer being waterproof—say three or four inches deep. The upper floor might be galvanised iron, with a few holes in it stopped with pegs. When these were pulled out the drainage would pass into the drawer and be removed at pleasure. When you wanted a dry heat, fill your drawer about half full with boiling water, and leave the pegs in. When you want a moist heat, use water about 160°, and have the holes open, or keep them shut and sprinkle the floor. For indoors a piece of cloth of any sort might be put over it at night. For out of doors the covering should be waterproofed outside, and warm woollen cloths inside. The temperature should range from 35° to 45°. To forward things in spring you must have from 10° to 15° more.

Superphosphate of Lime (*D. B*).—It is a good manure for all kitchen-garden crops, and has been applied with great benefit to Pelargoniums, Chrysanthemums, and Roses. We believe that every garden plant would be benefited by it; but especially those grown for their flowers or seeds. It is not so powerful—that is, not so stimulating as guano, as it does not contain ammonia. Cucumbers and Melons would not be benefited by liquid manure, if grown in a proper compost, and especially not if forced by dung-heat.

Peaches Falling (*E. T. J.*).—The sun not shining upon the Peach-house before nine o'clock is not material, and the only cause of the Peaches falling when of the size of Peas is a deficiency of a supply of sap. There is something wrong at the roots. These are, most probably, planted too deep. Remove the soil from over them, and when you reach the uppermost roots cover these with two or three inches of fresh, light, moderately-enriched earth, and give tepid water twice a-week. If there is top ventilation, and the doors can be left open when needed, the absence of front ventilation cannot be important.

Name of Plant (*R. F. S.*) —Your white-flowered shrub is *Andromeda floribunda*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

May 23d and 24th. Beverley and East Riding of Yorkshire. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

June 6th, 7th, and 8th. Bath and West of England. At Dorchester. *Sec.*, J. Kingsbury, Esq., Hammet Street, Taunton. Entries close May 7.

June 29th and 30th, July 2nd and 3rd. Sheffield. *Chairman*, Mr. Wilson Overend, Sheffield. Entries close June 14th.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

PROFITABLE POULTRY.

Every one will agree with us when we say, "that which is worth doing at all is worth doing well;" and before steps are taken to accomplish anything, the object to be attained should be well defined and settled. As we have said that a profit is to be made by sending fowls to market, it will be necessary to go into detail. The largest price is to be made when poultry is scarcest; that will be from the end of January till the beginning of June. If they were intended for the London market, we should advise cramming; but for the country we think packing will do. There would, no doubt, be a sale for young fowls at these times, even if they were thin; but as we have agreed it is better to do things well, and as we know the outlay will make a good return, we advise fatting by the means we will describe. Put the chickens in any coop where they will have only just room to move and turn round. Let them be in some quiet corner of a dry and rather dark place, covered up with sacks, or matting, or old pieces of carpet. Feed them three times every day as follows:—Have some oats ground fine as possible, but let nothing be taken from them in the name of bran or anything else. Mix some of this with milk as slack as may be without making it liquid. It should be stiff enough to lie on a flat board, not to stick to it, but to lie like lead or anything of the sort that had run till it got cold, and ceased to be liquid. Each time they should have as much as they can eat, and no more. The board on which it lies should be scrupulously clean, as, if any food remains, it becomes sour, and the birds then take a dislike to it. In from ten to fifteen days, according to the condition in which the fowls are put up, they will be fit to kill.

We assume that some one among our many readers will adopt our plans, and we, therefore, treat this as a plain business question. A market is to be made, and a demand created. This can only be accomplished by some little painstaking. We have assumed, and we know that we are correct, that in most, if not all country markets, there is a period when poultry is said to be out of season. This does not arise from the absence of fowls, but from their being so bad in quality people have given up all idea of eating them.

First, people must be convinced they are young; next, they must be very clean and look tempting; and, lastly, the market must not be glutted. Having, then, fed the fowls as described, let them be fasted till they are emptied of food and water, and then killed on the afternoon or evening preceding the market day Send only two, it is more than probable they will not be sold the first or the second time. If, however, they are carefully picked, and look well, and it is astonishing how they will improve in appearance and increase in weight during ten days fatting, they will soon be noticed for their good looks. From that time there will be sale for them, and birds that in August will make from 1*s.* 9*d.* to 2*s.*, will now realize 3*s.* 6*d.* or 4*s.* each. It is estimated it costs 9*d.* to fatten a fowl. By that outlay, then, the bird doubles itself in value. Eight shillings per week will pay for a great deal of food, and when the number of fowls sent is increased, then a profit may be looked for. This is neither the chief nor the only one. The breed will soon be in repute; the "*bons vivans*" of the place who care and know nothing about a fowl when alive, will soon appreciate the tender, juicy, spring chicken they have only lately had at their table, and eggs will be asked for sitting. Chickens will be asked for as stock birds, and bought at remunerating though not extravagant prices. These things put together will soon prove that which we have asserted, that profit may be made out of a market. It will not be a large sum, but it will be enough to help many an amateur, and may by painstaking be made a consideration.

EGGS UNPRODUCTIVE.

I went to some expense in getting four grey Dorking hens, and a cock (the latter said to be bred by Captain Hornby). I have had four hens come off with the following melancholy results. I may remark that no hens could possibly sit better. No. 1, 11 eggs, 4 hatched, (1 since dead); No. 2, 11 eggs, 1 hatched (dead); No. 3, 11 eggs, 3 hatched (1 dead); No. 4, 14 eggs, 3 hatched. So that, out of 47 eggs, only 9 chickens are alive.

[Most probably if you had put, at the most, seven eggs under each hen, you would have had nearly a chicken from each egg. During the cold season of the year it is a fatal error, in most instances, to put many eggs under a hen. In rotation they get to the outside, and in rotation get consequently chilled. If you apply to our office, every endeavour will be made to supply the indices you need.]

REMEDY FOR GAPES.

Observing a letter in The Cottage Gardener from "C. R.," requesting advice how to cure gapes in chickens, I enclose a receipt, in case you should think it worth publication. It was given me by a great poultry fancier. I have used it for years, and have never known it fail.—A Subscriber.

1 oz. of ginger in powder; 1 oz. of mustard flour; 1 oz. of black or white pepper ground; ½ oz. of Cayenne pepper. To be mixed together, and one spoonful given every morning to the chickens mixed with their food, a teaspoonful will do for about sixteen chickens.

GUINEA FOWLS.

A correspondent, "J. B.," in a recent number of The Cottage Gardener, suggested a class for his pet fowls. Allow me to remind him, for two years past the Bath and West of England Society has offered First and Second Prizes for Guinea Fowls, and this year also £1 is given as a First, and 10*s.* as a Second Prize. I hope, therefore, to find "J. B." entering the list at Dorchester.—Saml. Pitman, *Steward of the Department.*

CROSS-BREEDING.

A neighbour of mine has a black cock with rose comb, something like the Black Hamburgh, only rather larger. It is, I believe, a French bird, from Havre. Do you think this cock put with Silver-pencilled Hamburgh hens would produce Black Hamburghs? I am inclined to try, as I have seen it stated in your columns that a Spanish cock with Silver-pencilled hens will produce them. In a brood of Silver-pencilled Hamburghs lately hatched, one chicken has a single comb. The parents are good birds and in no way related, and the plumage of the chicken seems right, as far as can be made out so soon. Does the defect in the comb arise from the same defect in one of the more remote ancestors, or can it be traced to some other cause?—D. B.

[Such curious things happen sometimes from mixture of different breeds, that it is hard to say what may not be produced. If it is desired to make a Black Hamburgh, we think the result likelier of attainment, if the cock in question is put to a Spangled rather than a Pencilled hen. Many breeders know to their sorrow and annoyance that black patches will come in this breed. We should say the cock is an impure Crève Cœur, as that breed flourishes in Normandy, and the celebrated "*Poularde du Meus*" is made from it. If you are disposed to try it as an experiment or a pastime, well; but if you do so in order to obtain the breed, you will get it with less trouble and risk of disappointment, by applying to any of the

many exhibitors of this breed at the Crystal Palace. It is a common thing for a Hamburgh chicken of undoubted purity to come with a single comb; unfortunately, it must be destroyed. We say, unfortunately, for such an one is always the best Pencilled and plumaged bird of the brood. It must not, however, be allowed to run about the yard. There is little doubt the defect in the comb might be traced to some distant ancestor. While on the subject we may mention, Black Cochins are said to be produced by breeding between the White and Buff. We know a good breeder of the Blacks who always *refreshed* his yard now and then by turning down a White cock.]

BEES AND THOSE WHO HAVE WRITTEN ABOUT THEM.

(*Continued from page* 47.)

Conrad Heresbach, counsellor to the Duke of Cleves, published a work in dialogue entitled *Rei Rusticæ, libri quatuor*, but which would not have had more than this brief notice if it had not been translated into English, in 1578, by Barnaby Googe.

Googe was a poet, born in Lincolnshire, educated at Christ's College, Cambridge, studied at Staples Inn, London, and through the influence of his relative Sir William Cecil, became Gentleman Pensioner to the Queen. In 1563 appeared his "Eglogs, Epitaphs, and Sonnets," which is a very rare book. In 1565 he translated and published "The Zodiake of Life," from the Italian, by Palingenius. His translation of Heresbach was printed in 1578, though the preface is dated 1557, and is entitled "Foure Bookes of Husbandrie, containing the whole art and trade of Husbandrie, Gardening, Graffeing and Planting with the antiquite and commendation thereof." It was reprinted in 1614, by Gervase Markham, with additions.

The concluding pages are devoted to bees, but contain little more than an epitome of the details and directions given by Columella, Palladius, Varro, and Virgil, and the work is chiefly noticeable for containing the first translation into English verse with which we are acquainted of a portion of the "Georgicks." The following brief extract will serve as an example of both the prose and the poetry:—

"Virgill following herein Aristotle, doth most commend the little, long, smoothe, and faire Bee, and making mention of two sorts of Kings, he describes the woorser, whereby he shall doe no harme.

> "Destroy (saith he) and let the other liue,
> Whose golden hew doth glister in the eye:
> And decked with glittering scales, faire shew doth-giue,
> Of farre more grace, and farre more Maiestie.
> With loathsome looke the other doth appeare,
> And dragling drawes his tayle with heauie cheare.

"And as there is two sorts of kings, so is there of the other Bees.

> "Some Vglie seeme, and some againe doe shine,
> Bedasht with drop of golden colour fine.

Being milde and gentle: for the Bee, the greater he is, the worse he is, and if he be angrie, and fierce, and round, hee is woorst of all. And because (as I said before) the best are onely to be medled with, sith the good and the bad are a like chargeable, and require like tendance, and speciall heede to be had that you mingle not the bad with the good; for lesse will the encrease of your Honey be, if some of your Swarms be ill matched."

There is little, if any doubt, that the bee "bedasht with drop of golden colour fine," is the Ligurian bee, for the introduction of which an effort is now being made by Mr. Woodbury. Aristotle's reference to these bees is as follows:—"There are more kinds of bees, but only two sorts of kings. The best is of a red colour, and the other is dark, and of various hues, being also twice as large as the best."

Googe interpolates but very few notes relative to the English bee-management of his period, and of his interpolations this is chief:—

"This driuing and gelding of Hiues is not commonley used in the Countrey, but they rather, according to their custome, at the end of the yeere burne them, alledging for their authoritie an old English Prouerbe of their owne:

> "Driue Bees, and loose Bees: burne Bees, and haue Bees.

And in some places they drowne them. When you haue thus spoiled your Hiues, you shall carry all your Combes into some handsome place, where you meane to make your Honey, and stoppe up all the holes and creuisses of the walles and windowes, as close as you may: for the Bees will be very busie to recouer the pray."

Googe also details the plants which he had planted about his apiary, of which we need only give one quotation, for he dwells more on their medicinal than their honied merits.

"And because Master Hersbach hath shewed you before in his Garden many good hearbes, and yet not whereto they serue, I will shew you a few plants, that I haue set about my Bees, seruing both for their commoditie, and the health of my houshold: I haue chosen of a great number, such as be most necessarie, & of greatest vertue: whose speciall vertues, and wonderfull workings, giuen onely by the most gratious and bountifull framer of the world, and being as it were sucked and drawne out by the carefull toyle and diligence of the Bee, must needes adde a greater perfection to their honie and their waxe. I haue first enclosed the Yard where my Bees stand, with a Quickset-hedge made of Black-thorne and Hony-suckle: the one of them seruing the Bee with his flowres at the beginnieg of the Spring; and the other at the latter end of Summer. The first, the Black-thorne beareth a pleasant white flowre, so much the welcomer to the Bee, as it is the very farewell of the winter: for he commonly flowreth not till the winter be past. These flowres newly gathered & steeped all a night in the best and strongest wine, and afterwards distilled in Balneo Marie, being drunke, helpeth any paine in the sides, as hath beene certainlie proued. Tragus the Germane confesseth, that with this onely water he hath cured all maner of paines about the stomack, heart, or sides. Wine made of the Sloe, and preserued vntill Julie, or August, when the bloudy Flix most raigneth, is a soueraigne medicine against it. The other, the Hony-suckle, or the Woodbine, beginneth to flowre in June, & continueth with a passing sweet sauour, till the very latter end of summer. The water thereof distilled and drunk, two or three daies together at times, asswageth the heate of the stomacke, helpeth the Cough, and shortnes of breath. Rags of linnen dipped therein, and applyed, doe heale any heate of the Eies, or Liuer."—G.

(*To be continued.*)

NEW BOOK.

THE ITALIAN ALP-BEE, OR THE GOLD MINE OF HUSBANDRY.

Such is the title of M. Hermann's pamphlet, published by Messrs. Neighbour and Sons, giving "short and practical instructions to breed genuine prolific Italian queens; to multiply them by hundreds in a few months, and how to change German hives into Italian."

The reader of this pamphlet must make allowances for German enthusiasm, and may thank Messrs. Neighbour for their omission of many passages which would not be admissable to an *English* family circle. We shall content ourselves with making a few extracts, and appending between brackets, a few remarks from the pen of "A Devonshire Bee-keeper:"—

"The yellow Italian Alp-bee is a mountain insect; it is found between two mountain chains to the right and left of Lombardy and Rhætian Alps, and comprises the whole territory of Tessins, Veltlin, and South-Graubunden. It thrives up to the height of 4500 feet above the level of the sea, and appears to prefer the northern clime to the warmer, for in the south of Italy it is not found. From the mountain those bees later emigrated into the plains, but they do not thrive so well there. Some learned men have called them Ligurian bees, but that name has neither historical nor geographical claim, and not one bee-cultivator of the whole district of the Italian Alp-bee knows what kind of insects Ligurian bees are. The Alps are their native country, therefore they are called *Yellow Alp-bee*, or tame house bees, in antithesis to the black European bees, which we might call common forest bees, and which, on the slightest touch, fly like lightning into your face."

[If they will thrive at 4500 feet above the sea level, they certainly must be hardier than the common species.]

"The Italian yellow bee differs from the common black bee in its longer, slender form, and light chrome yellow colour, with light brimstone coloured wings, and two orange-red girths, each one-sixth of an inch wide. Working bees as well as drones have this mark. The drones are further distinguished by the girths being scolloped, like the spotted water-serpent, and obtain an astonishing size; almost half as corpulent again as the black

drones. The queen has the same marks as the working bees, but much more conspicuous and lighter; she is much larger than the black queen, and easy to be singled out of the swarm, on account of her remarkable bodily size and light colour."

[A very good description of the workers. Of the drones nothing is yet known in England. We have seen nearly a dozen queens of this species, and none of them were at all larger than a good-sized common queen, whilst some amongst them were decidedly smaller.]

"The bees are almost transparent when the sun shines on them."

[This transparency is confined to the orange-red abdominal rings, and is very remarkable.]

"This race has nothing in common with the black bees, which can be instantly seen by their ways and manner of building. The cells of the Italian bees are considerably deeper and broader than those of the black bees. Fifteen cells of the Italians are as broad as sixteen cells of the black kind. It must be very interesting to measure them geometrically."

[None of their combs have, we believe, reached England; but if their cells are so much larger than those fabricated by the common species, it is somewhat extraordinary that no difference could be detected in the size of the bees themselves, even when those examined were stated by M. Hermann to have been forwarded direct from the Alps, where, of course, they were bred in their own combs.]

"The Marquis of Spinola has called this bee the *Apis Ligustica*, but on the same ground the Bavarians may call their bee *Apis Bavaria*, or the Berlinians theirs, the *Apis Borussia*, &c. The circumstance that these yellow bees are only to be found in the most perfect condition on the borders of Graubunden, in the Veltlin and Tessins, and that, the farther one goes from the Alps, the less handsome they are found, as for example in Nice, until they are entirely lost in lower Italy in the black species, speaks for itself, that the yellow Alp-bees have been, through the glaciers, insurmountably separated from the black bees on this side of the Alps, and could preserve their race in original purity, while they might and could mix more, by latter gradual spreading, in lower Italy, Venice, Genoa, and Nice, with other kinds. We must therefore look for the original in Switzerland, and can call them with as much right *Apis Helvetica*, as the Genoese call them *Apis Ligustica*."

"*Breeding of the Queen.*—For that purpose choose the largest hive, for it is an old saying that 'a large cow will produce a large calf.'—From so fine a hive you certainly have fine young ones. As it is known that out of every working-bee-egg the bees can breed a queen, and that they often prepare as many as from six to thirty at the same time, advantage must be taken of that fact. But do not begin with the breeding of queens until the bees are sufficiently strong, and have commenced the breeding of drones. This must be particularly attended to if you want to breed afterwards pure Italians; for to insure their mating only with Italian drones, these must first exist, and that in strong numbers.

"*How to breed Italian Queens when in possession of one or two whole Italian Hives.*—When you have one or two Italian hives, you must endeavour to put them into hives with moveable parts, if they are not already in such. Then care must be taken, that by continual feeding with good honey, and filling up of the hive with sufficient combs, they increase their strength and prepare a good many drones. The trouble is much less if the Italian bees are on a stand by themselves, about 500 or 1000 yards from the others, the farther the better. It will be well to be cautious, to leave *one* hive undivided and untouched that they continue to breed many drones, for the divided hive will not produce any more drones in the same year; therefore, one hive must be kept strong and untouched, so that you do not run short in drone-breeding. When there are sufficient drones or drone-brood on hand, take from a hive the Italian queen with the third part of her people and building, and fill up the missing two-thirds with empty and full combs. This queen is now taken to a distant stand where the common or black bee is kept, and placed in the stead of a populous hive during the absence of the most part of the bees. The black bees will at first be surprised and refuse to enter, as these two species hate each other. Should they entirely refuse to enter, then remove during the flight the whole of the black hives standing on the same front; the returning bees will then be frightened, and not knowing where to go to, will, in the end, willingly, and without disturbance, enter to the Italian mother, which by those means will soon get strong again; and in about five or seven days, will have laid sufficient eggs to part them again; and so you can continue as long as you wish to Italianise. In that manner, if the queen is forthwith strengthened by German bees, no disturbance takes place in the breeding of drones, you have only to put in a few drone-cells. But that the Italian mother does not receive black drones as well, place before the fly-hole a drone-stopper to keep those customers out. Let us now return to the Italian stand, whence we have taken the mother with a third of the people. Meanwhile they have made preparations to begin queen-cells, and mostly more than one, perhaps from ten to twenty. On the eleventh, the latest on the seventeenth day, they creep out, and, not to expose them to the danger of the surplus ones being killed by the bees, they must be looked after on the eighth or ninth day, and all queen-cells but one or two must be cut out. The cut-out cells are put with a honeycomb and a few handfuls of bees into a little box about four or six inches square. These boxes must have wires on two, or, better, on all four sides, so that the bees get used to the smell of each other, and thus become reconciled. In such a box the Italian queen-cell is put in to a hive of black bees, which the day previous has been deprived of the queen, and if possible in the centre or the heart of the nest. The black bees cannot now enter into the box, but become acquainted, through the wire, with the smell of the Italian bees; and by the time the queen, which will be well taken care of by the two handfuls of bees put with her, is matured, the black bees will have taken a liking to her. About three or five days after the adding of the queen-cell, you must look whether the black bees have not formed queen-cells of their own species, if so, they must be cut out. Then, the following day, the fly-hole in the little box which has been kept shut is slowly opened, and the black bees will gradually enter into the box and pay their homage to the new queen. To prevent the mating of the queen with a black drone, a wire must be attached before the fly-hole of the hive, large enough for the queen and bees to fly out (for the queen only mates in the open air) but too small for drones, which are in the black hive; then the stand must be placed where the Italian mother-hive is, until the queen is impregnated. In the same manner all queen-cells are treated (all but one or two, which are left in the hive for the purpose of forming a separate colony) until all black hives are Italianised. Should, however, a hive be impregnated where it is supposed any black drones exist, it must be put on the stand of the black bees, so as to have only pure Italian drones on the Italian breeding-stand. In three weeks, with only little practice, about fifty hives can be Italianised. When done, and all the bees are provided with queens of Italian origin, then the work is much easier, as meanwhile, the young mothers lay Italian drone-eggs, and the black drones die, or, the Italian drones obtain such preponderance, that a genuine impregnation is in most cases certain. For breeding, always choose the finest mother, if possible, of yellow colour, having previously convinced yourself that she has been impregnated genuinely—that is, by an Italian drone, and that she breeds, as a proof, handsome yellow working bees."

[These directions are practical and good.]

OUR LETTER BOX.

Common Pigeons (*Job*).—Write to Mr. Baily, 113, Mount Street, Grosvenor Square, London, W.

How to Make a Canary Sing?—*An Inexperienced Bird-keeper* is scarcely explicit enough in her inquiry. Singing may be regarded as the outpouring of the bird's happiness. A bird may not sing from several causes; it may never have heard another and so not have learnt; it may be a hen and cannot sing; or it may be overfed, or ill, and not in a humour for singing. If it has never learnt, put it within hearing of another for a few days. If overfed, or ill, restore its health by plain food, cleanliness, and fresh air. Do not give it either hemp, rape-seed, or sugar; let the bird enjoy a bath twice or three times a-week. See that the cage is clean and free from mites or insects, and do not hang it in too close or vitiated an atmosphere.—B. P. B.

Iron Pigeon-houses (*S. J. M.*).—I have no experience of them, but should think that the condensation of the breath and damp arising from the dung would not be sufficient to cause an injurious effect, if proper ventilation were introduced. Yet, I think, iron would be improper for the bottom of the nests, as from its rapidly drawing off the heat, it would be liable to cool the eggs or kill the young.—B. P. B.

Ligurian Bees (*A Hampshire Bee-keeper*).—We shall be very much obliged by your reporting your future progress with the whole hive of bees sent by M. Hermann. We are right glad to hear that they arrived in good order and are doing well. We would take a journey to see the bees at work, if we knew where they are; and we should also like to know what the bees cost, and what was paid for their carriage.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	MAY 1—7, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
1	Tu	St. Phil. & Jas. Prince Arthur	29.798—29.745	56—36	E.	—	33 af 4	20 af 7	34 m 2	10	3 5	122
2	W	Aphanes arvensis. [born, 1850.	29.901—29.861	53—39	E.	—	31 4	22 7	50 2	11	3 12	123
3	Th	Hippuris vulgaris.	29.894—29.806	62—37	E.	—	29 4	24 7	6 3	12	3 19	124
4	F	Veronicas, many species.	29.783—29.712	60—30	N.E.	—	28 4	26 7	25 3	13	3 25	125
5	S	Pinguicula vulgaris.	29.952—29.858	62—26	N.E.	—	26 4	27 7	rises	☺	3 30	126
6	Sun	4 Sunday after Easter.	30.035—29.985	64—33	S.E.	—	24 4	29 7	53 a 9	15	3 35	127
7	M	Orchis moris, and others.	29.983—29.924	73—48	S.	.39	22 4	30 7	0 11	16	3 40	128

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 61.5° and 39.6° respectively. The greatest heat, 81°, occurred on the 6th, in 1830; and the lowest cold, 20°, on the 2nd, in 1855. During the period 136 days were fine, and on 95 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Beans (Broad), earth up the early crops, and make another sowing. *Brussels Sprouts*, prick out the seedling plants of the earliest sowing, to get them stocky for final planting. *Cauliflowers*, draw the earth up to the most forward plants, and give them a plentiful supply of liquid manure. Water, and attend to the crops raised from seed this spring. *Celery*, the same as advised for Cauliflowers raised from seed this spring. *Cucumbers*, the young plants intended for ridges to be stopped, and repotted if they require it. Sprinkle the plants in the frames early in the afternoon, and shut them up. Water to be given liberally round the sides of the frame when the heat of the day dries the soil. *Lettuces*, repeat the sowings of all sorts, and thin out and transplant those advancing as occasion may require. *Melons*. See to the linings; the cold and frequent rains have probably chilled them, no diminution of heat to be allowed. Look over the plants frequently, and stop laterals. *Potatoes*, where they are above ground, draw a little dry soil over them, to protect them from frost. No time should now be lost where circumstances have delayed the planting of the main crops. *Pot Herbs*, sow seeds for next year's planting. *Peas*, make another sowing of two or three different varieties, according to the consumption. *Rhubarb*, cut off the blossoms as they appear, if not wanted for seed. *Sea-kale*, the same as advised for Rhubarb. *Savoys*, the same as advised for Brussels Sprouts. *Spinach*, make another sowing. Attend to the thinning of the early crops. *Strawberries*, keep the plantations free from weeds. When the fruit from the early-forced plants is gathered, to be planted in ground well prepared by deep trenching and liberal manuring two feet apart row from row, and one foot from plant to plant in the row. From such plants early runners can be obtained with ample time for rest before the forcing season commences.

FLOWER GARDEN.

Whilst the weather remains cold and damp many operations will of necessity be retarded. Make up arrears of work with all speed as favourable occasions arise. Newly-laid turf to be levelled, and rolled when the ground is damp, that an even surface may be obtained. *Auriculas* to be shaded and watered regularly, hybridising where first-rate seed is required. *Carnations and Picotees*, the sticks to which the shoots that spindle for bloom are to be attached to be inserted in the pots. Seed to be sown in shallow boxes or pans. *Pinks*, top dress the beds with rich, well-decomposed compost. *Tulips*, the late frosty nights have done some injury to these beautiful flowers. As previously advised, the choice sorts should be protected from hail, heavy rains, and frosts.

FRUIT GARDEN.

Apricots, to be frequently gone over, to destroy a small grub that coils itself among the leaves; disbud carefully. A slight thinning of the fruit to be made, if so fortunate as to have them too thickly set. *Vines*, when they have made growth sufficient to distinguish the fruit-bearing shoots, let all superfluous ones be immediately removed.

STOVE.

Continue to pot on all such plants as require it. Water to be given pretty liberally to all that are making free growth. Continue a kindly humidity, and a gentle increase of heat. Shade lightly in bright sunshine, and shut up early in the afternoon. Attend to the *training* the shoots of twiners as they advance in growth, and do not allow them to get entangled before giving attention. *Begonias*, repot and propagate. Persevere in keeping down insects, which, if allowed, will now progress with great rapidity.

GREENHOUSE AND CONSERVATORY.

Continue to stop, prune, or pinch back all straggling growth. Keep the surface of the bed in the conservatory between and about the plants often stirred, and make additions of good rich soil, to keep them in health. If the borders are dry give them a good soaking of water, and let it be a soaking that will penetrate through the whole mass of soil. Keep up a moist atmosphere by sprinkling the house twice or thrice a-day.

PITS AND FRAMES.

Keep up a gentle heat to tender annuals. Lose no time in completing all spring propagation, and pay attention to the hardening of stock for summer decoration out of doors. W. Keane.

THE WHEEL ARRANGEMENT OF FLOWER GARDENS.

A wheel within a wheel, or a wheel without a rim, or with the spokes fastened, or not just secured to the axle-box, or with that box split into two or four parts, is a general favourite way with designers of small fancy flower gardens, and with the highest artists of the present age. Witness the Rose Mount at the Crystal Palace. It is a wheel within a wheel in the most literal sense. The Mount itself is the outer wheel; the walk all round the bottom of the Mount is the rim of the outer wheel; the side-walks going up to the "rosery" part of the Mount are the spokes; the rosery is the axle-box; the top of the Mount is the inner wheel; the flower-brae above the rosery is the axle-box of that inner wheel; and the flagstaff in the centre is the axle common to the two wheels. That is one extreme end of designing, and the opposite to it is where the rim is detached from the spokes, the spokes from the axle-box, and the box itself split up into four quarters, leaving a passage up to the axle from the four cardinal points.

The "Fountain Garden" at Shrubland is the nearest example to the latter way that I know of. The fountain itself and the basin represent the axle; and four walks from the circumference lead on, at equal distances, to the axle or fountain, thus dividing the wheel into quarters or four quadrant-shaped pieces of ground, or of the wheel,

and each piece or quadrant has its own share of the number of spokes, and each of the spokes is in three parts or beds, the centre part or bed being a circle, as if the centre of the spokes all round had been "turned" or carved in that way; the bed or part farthest from the axle is the largest to occupy the widest part of the quadrant, and the bed nearest the axle is the narrowest, as it tends to the narrow end of the quadrant. There are five of these spokes in each quadrant, making twenty in all, besides the usual complement of promenade-beds along each side of the four walks, and a provision of smaller beds for cutting off the colours of the spoke-like rays from the colours in the promenades. Now, if you make a circle and divide it into four equal parts, and then draw out the parts asunder, as it were, there would be just four quadrants, or quarters; stand them now four feet, or five feet, or six feet apart, and the number of feet will be the width of the walks. That would draw the four points, or narrow ends of the four quadrants, so far from the centre as to allow a circular bed to stand just where the axle ought to be, or where the flagstaff at Sydenham and the fountain at Shrubland Park stand at present. Now, that circular bed in the centre is four feet, or five feet, or six feet, or eight or ten feet in diameter, according to the size of the quadrants or flower garden. Round the outside of these there may be, or there may not be, a walk all round like the rim of a wheel according to the ground and to one's fancy, the purpose or idea will be as complete without a rim or outer walk as with it. Now, divide each of the four divisions into five rows of beds in the direction of the way the spokes would rest or go. The width and the length of these beds will vary, of course, with the size of the centre or axle-circle, which is the key-bed for designing this figure and for planting it, and for reading off from it the design of the planter. Each of the five spokes may be in two lengths, or of three lengths, or only of one length, but the three are the best for the present purpose. Making three beds of each of the five spokes, make fifteen beds in a quarter, and twenty rows of beds; representing twenty spokes in a wheel, will be the whole complement.

Well, now mind what we are coming to, and recollect it is to be the pink of perfection as long as I live; and when I am dead and gone the next teazer may turn it into a wheel within a wheel, with my free consent for his legacy. But you cannot mind how it is, or how it is to be, by merely reading it over once or twice; and if it does not concern you, once will be quite enough. I do it this way on purpose to cause it to be remembered as long as one lives, because what comes as easy as an old shoe goes just as easily out of an easy memory; but this will not, because it will take some trouble to learn it, and thousands and tens of thousands will be engaged on it, occasionally, as long as it lasts. The plan is a wheel in four parts, the twenty spokes of the wheel apart from the stock or box, and each spoke is divided into three parts, the axle-box is in the centre by itself, and the open spaces are the walks, and the whole is intended and will be used for a grand display of the Verbena family—the most splendid thing that has ever yet been done or attempted. You recollect we had the Verbenas lately in twenty-two distinct sections, and there is a spoke or one ray in this arrangement for every section, except two sections, the muddled sections; and as it happens, or rather as it is hereforth designed, these two will be necessary to complete the idea. A neutral bed, the centre circular bed, is the key-bed to read the whole from; therefore, it should by law be a neutral bed—that is, not giving any particular colour so as to interfere with the rest of the colours in the design. Mottled or muddled Verbenas, all white Verbenas, and many of the blush whites will come in for neutrals, in after years, to make a yearly change in the key-bed, and everybody will be allowed to plant all the spokes, or rays, of beds in her own way. "She" being everybody, of course; nobodies will have the same privileges; and hes may plant it as they may; but I shall plant it thus:—

I shall take the centre spoke in each division first, and plant it; each spoke will be planted classically grammatically, *bonus, melior, optimus*, or in three degrees of comparison of good, better, best. The first bed of each ray, or spoke, will be the good kind of that colour; the second in the spoke, the bettermost sorts; and the third, of the very best of that colour; and so with the twenty rays all round; and so also did I place them in that enumeration of them which took me seven years to learn; but this way of displaying them has occupied my thoughts for the last fourteen years, and nobody ever knew to this day that I had such a notion in my head. But you may now perceive that there was some foundation for the assertions about people who may be ignorant of all the plants for "planting out," are necessarily exempt from the duties of a flower-garden designer; and that no man on earth can ever design a perfect flower garden until he is first master of all the plants that are bedded out at the time, and the colours which each kind gives to a mixed composition of colours, made either on the principle of contrast, or of combination, or of both combined, which is the more usual course. The centre spoke of one of the divisions is planted with good, better, and best kinds of the brightest or richest scarlet. The two rays next to the centre ray will be planted with the three darkest crimson kinds on one side, and the three lightest purples on the other side. Then there remain two side-rays; one of them will be the best and nearest to blue, and the other the darkest purples from three sections. But this quarter being planted tells a tale, an awful fix. Why, the very dowdiest colours are in the rays next the walks, and just under one's eye more than any of the lively colours. To get out of that fix explains a fundamental law which should never be lost sight of at planting-out time. That law is to plant white flowers only where they can throw more light on coloured flowers, so to speak. We want more light on the darkest Verbenas next to the walks in this arrangement; therefore, we shall be within the law if we make one more ray to each side of all the quarters, or to the sides next the walks, and plant them with white and blush-shaded Verbenas until we come to lavender-coloured kinds; and thus the four quarters will include every kind of Verbena that is worth planting, and three shades of colour in each of the sections which have been enumerated. All the strongest colours will be in the centre ray of each quarter, and the next agreeing colours come right and left of the centre. Thus the whole family will come, as it were, under one roof, and each member of the family is just in that place where it tells best on the eye, and nowhere else; and not to monopolise the positions of all the kinds, I shall leave the three other quarters of the wheel to be planted by others who may differ from my fancy in such things. All the sections and all the best in each section have been given, and now the ground is ready, plant and please the planter. Geraniums or Calceolarias, or both together, might be planted in the very same beds in the same way, and so might Petunias.

That way of planting colours in rays issuing out in all directions from a common centre is the most natural way that has yet been pointed out. I have seen many attempts and instances of that way forcing themselves, as it were, on designers whose plans have been sent for judgment; but none of them were without accessory beds, or so complete and yet so simple as this.

But about the idea of the wheel pattern. One now lies before me, coloured, and done to Euclid. It is in the centre of a composition flower garden, and there are only eight spokes to the wheel in the shape of eight fan-beds, radiating from the centre box, and their narrow ends fixed to it. The axle-box is a large circle of the *Golden Chain*, which is raised one foot above the level of the fan-beds with Larch-stakes driven in the ground

to keep up the soil. There is a passage up between all the fan-beds to the *Golden Chain* bed. Two of the smallest of the fan-beds—the match pair—are planted with the Variegated Alyssum. Two of the largest of them, also a match pair, are planted with the *Flower of the Day* Geranium—that is, these four white beds are in a cross from a yellowish centre, and between the arms of the cross, or between these four white beds, are four beds of *Cuphæa eminens*—a large bloomer I noticed in a report of Kew three years back. Now that is a wheel of eight spokes, and a neutral group of very great richness in the centre of a scene without any particular assistance from the actual flowers. The very same idea was given by Mr. Craig, of Kew, in the plan he planted for me and for Raby Castle, without a particle of a notion that I had then such a wheel in my possession; and I never saw that exact plan anywhere. Mr. Craig saw, also, that the beds from 36 to 42 in that plan were a second thought, just as Mr. Evans told us last week at page 56. So you see the rules of our art are just as true and telling as the rule for navigating the Prince of Wales to Canada, and back again. Outside the ends of that wheel—the rich, neutral wheel—came four large corner, or say half-corner, beds—for the composition extended beyond them—the four were planted with *Tom Thumb*, after our friend, the Irish Doctor—so much white and so much scarlet; but the white here was from "a white-foliaged Eyebright as was seen at Shrubland Park," whose eye would not brighten up at the sound or sigh of true Eyebright. But what was it? A real goddess? one of the three Graces expressing joy or pleasure? Such was Euphrosyne, and Eyebright is called Euphrasia after her; but the goddess which was bedded at Shrubland Park with "poor *Tom*," may have been another of the three, and I shall have to trouble Mr. Taylor then to let us hear what it was and how it did, and where we can get it, or else I must go to Scotland where the wheel is going round and round as fresh as when it was sent to me.

I must also put myself square with my Nosegay friend and west country patron, Mr. Pince, of Exeter. It is said, in the last COTTAGE GARDENER, that he should say the *Model Nosegay* was the best Rose Geranium. He never said anything of the kind, he is too good a judge to decide that way. But what they say that he said, and what I ought to have said instead of Rose, is a vase. Mr. Pince told a friend of mine that the *Model Nosey* was the best *vase* plant he had seen last year, and very likely in the vases and rustic baskets it has no rival but *Mrs. Vernon*. D. BEATON.

HOW TO FARM TWO ACRES AND MAKE THE MOST OF THEM.

(*Continued from page* 61.)

HOW TO CURE PORK.

THIS is a different thing altogether from curing bacon, and it is seldom we meet with both done well at the same place, there being but little pork cured in the district from which the bacon curing has been described. But in many parts of the south of England there is very excellent pork cured in a very efficient manner—in fact, there is more pork made than bacon; and the quality when well done is very good, provided the animal has been well fed, as this tells on the preserved article, whether pork or bacon. The best way of curing pork is in a wooden tub with a moveable lid, fitting rather close, yet easy to take off and put on again. The tub, if new, ought to be well seasoned with salt and water, and may finally be rubbed over with lard. The pork, being cold, may be cut up into moderate-sized pieces, and the skin side is rubbed a little with salt, as advised for bacon. A layer of salt is placed on the bottom of the tub, and the pork laid as flat upon that as it can be, a good layer of salt being laid over each layer of pork; the latter being packed in a close-fitting condition, and pressed tight down. The whole being put in, and a good salting given at top, the lid may be put on and the tub placed in a cool place. I ought to have mentioned that saltpetre ought also to be given as well as salt; the latter being much more liberally applied than for bacon, as it is expected that the bulk of the pork is fat, the hams being generally cured and dried. The shoulder, however, is often put in the pickle-tub, and, if so, ought to be the first portion used, as the lean part of meat becomes so much more salt than the fat; the latter, in fact, not taking up more than the proper quantity, however much may be given: therefore do not pinch this article, as it is the only thing with saltpetre that is advised to be used. No preparation of pickling fluid, the pork and salt will of themselves provide that; and if all go on well the whole of the pork will be covered with brine in two or three months after the pork is put in; and in that condition the pork is said to be better at the end of one or two years than at the first—in fact, it will keep any reasonable length of time, and be sweet and good.

THE MANURE-HEAP.

The management of manures has been a fruitful source of discussion in agricultural publications, and the method in which it is often treated is certainly very often to be deprecated; but it can hardly be expected that the small farmer of two acres can enter into the mechanical operations so ably enforced by some writers on this head in the way of distributing liquid manure and similar matters, as we may fairly expect he has all his horse power to hire, and of course that must be used economically. The advice we therefore give him is to avoid all unnecessary carting; but by all means to scrape together as much manure as ever he can in the shape of road-scraping, mould of all kinds, even sand or clay may often be used for a "bottom" for the *dung mixing*. The cow-yard also might be covered over six or eight inches thick or more with chalk, which might be removed with the last coating of dung in the spring. The cow being taken in in the autumn, the yard must be covered with straw, which by-and-by is converted into dung and more straw added, until, some time in January, it is advisable to clear it all out, carting it out to the "bottom" of the mixing, prepared with mould, &c., as above, about a foot thick; and in some situations where its appearance is not objectionable, let the dung be laid two or three feet thick, and at two or three periods throw some salt upon it. The yard being covered again with straw, more dung is made, which is carried out in like manner; and unless the first portion of it be wanted in the spring for the tillage-ground it ought to lie till the autumn for the grass-land; but about August or September let it be turned over, and the rough portions broken, and in November it will be ready to cart out. Observe, I advise every means to be adopted to increase the quantity. Straw for litter used liberally comes cheaper than artificial manures, and is much better when converted into good farmyard dung. A good salting is also useful on light soils, though I am not certain it is wanted on stiff lands. It must also be observed that, previous to hot dry weather setting in, the mixing ought to be covered with mould or something that will prevent evaporation; and in turning the mixture take care to keep some of the earthy matter at the top as well as at the bottom, and expose no larger surface to the atmosphere than can be helped, making the heap a medium height, and its sides and top uniform.

Where a large quantity of rough soddy lumps, composed of sedge, or rushes, or hedge-parings, having much vegetable matter in them, is to be had, it is better to make this into a heap by itself, and to add one load of quick-lime to every half dozen loads of such substances. The

lime speedily destroys the vegetation, and a useful friable mass is obtained in less than two months if the operation be done in summer; in winter it takes longer. One or two turnings are necessary after the lime has run, and an excellent mixture for dressing grass-land any way affected with moss is obtained.

Many other mixtures may also be had where there is a suitable material, and some districts afford substances which might with advantage be used at once. For instance: Marl is ready for use when dug, and Sea-weed is best worked into the land when it is obtained; while some materials, as millwash, old rags, and similar things keep a considerable time. But the locality generally bespeaks which manures are in most abundance; and I confess myself more in favour of quantity in this article than quality, unless under peculiar circumstances.

J. Robson.

FORCING THE SIR HARRY STRAWBERRY.

I was much pleased the other day with a very fine lot of forced Strawberries grown by Mr. Kearns, gardener to Mr. Humphrys, of Ballyhouse; they were *Sir Harrys*, and in six-inch pots. On one of the plants that were taken down for me to examine (and that not the largest) I counted fifty good-sized berries, some very large. There were heaps of smaller ones, but I did not count them, as they probably will not come to perfection. Two good platefuls, I was told, had already been gathered. Mr. Kearns had two sets of *Sir Harrys* procured from different sources; there was at least ten days between them, though they had had in all respects the same treatment.

Keens' Seedling, in the same house, and with the same advantages in every respect, was only coming into blossom, and with very inferior promise.

I think we may safely conclude that no Strawberry equals *Sir Harry* for an early-forced crop.—Q. Q.

[We should like to know from other correspondents whether they have found *Sir Harry* forces well.—Eds. C. G.]

CIRCUMSTANCES CONNECTED WITH THE FLAVOUR AND TEXTURE OF FRUITS.

This seems a question very imperfectly understood at present, and no wonder, for it has not until lately received a tithe of the attention the subject both requires and deserves. Pomological societies are effecting much good, and are capable of doing much more; and with such men as Mr. Hogg aiding the movements, we may soon expect considerable progress. The information furnished by many exhibitors concerning the soil and subsoil, degree of latitude or locality, altitude of the district, aspects, &c., is of no small value, and will induce many to compare circumstances, and draw useful conclusions therefrom.

To begin with Pears. Every cultivator knows that very anomalous appearances present themselves, not only with regard to the same kind in different localities and soils, but in the same garden occasionally. This, of course, I have witnessed with several kinds; and after due consideration I am convinced it is not heat alone, but that permanency of moisture at the roots is equally important. And not only with Pears, but with most other fruits. Some may think it strange that writers who have ever advocated thorough drainage, and the avoidance of deep borders, should, as in the present case, be as anxious to recommend a due attention to moisture at given periods; but the fact is, that in counteracting extremes much of the art of culture consists. But let us inquire into the effects of drought on fruits in general, and first on Melons.

Cultivators are well acquainted with the fact of Melons cracking and becoming totally spoiled, principally during the last swelling. This occurs more frequently to those on dung-beds. Some forty years since when I began to grow Melons on my own responsibility, I remember well having two or three frames of Melons, in those days all scarlet-fleshed, and chiefly "rocks," for not a soul then knew or cared for the breed we now call *Orion*, &c. These Melons of mine grew with freedom, and had a good fair crop; and I must here confess that young aspirants in those days were fond of big leaves, and watered very improperly during the first swelling. About the early part of June these Melons had mostly taken their final swelling, or, at least, the skin had become set and rough, and I was advised to put the frames on bricks, in order to let the roots pasture in the rotten and warm linings. I did so, and in a fortnight or so those which were fixed in the coat rifted and rotted in strange ways. Here was a sudden accession of supply from the roots luxuriating in the dung which the fruit could not withstand, and I name it by the way, not as falling at once on our subject, but as pointing to the cracking, rifting, and coarseness of fruits about which we will inquire.

I have known Cherries, such as *Bigarreau*, during hot and dry periods, so short of flesh and juices, that they were scarcely worth eating, and this simply through drought at the root whilst swelling.

Plums I have seen cracked and rusty-coated in hot summers; a mere prey to flies and such depredators, generally drought the cause.

Pears.—I have known repeated instances where the application of water in a timely way has obviated such evils at once. Last summer I had a famous crop of *Glou Morceau* on a standard tree twelve feet high, and which I planted twenty-two years since. These Pears, the tree having borne heavily for several years, had begun to crack, and last July and August I felt assured that it was drought through exhaustion of the soil. I had the tree flooded, and again about the end of August, and this tree was the main stay of our dessert from the end of November until the end of February, and they were excellent. With all our kinds they were always first, after the *Marie Louise*, &c., were over; but, instead of being cracked, they had a fine flat-looking exterior of the finest texture, and they kept bravely.

Our Apples, too, on hot or gravelly soils are, in some seasons, pitiful. I have experienced much of this during the time I have been here, in the farm and cottage gardens which border the forest of Delamere, and which partake in no small degree of this moorland character of soil. I have seen on such trees heavy crops of would-be Apples totally unfit for market, or, indeed, for any purpose. Generally, only half sized, lean-looking, and the skin covered with patches of that peculiar fungus which is apt to infest badly-grown Apples. I have tried their keeping properties against the same kind grown in these gardens, and no one could believe the difference without actual experience. They will not keep.

But I may also at once advert in the lump to the effects of drought on other fruits. Apricots suffer least. On Raspberries, Gooseberries, Currants, and black Currants, the effect is most damaging.

Now, it is not general droughts at any period that I mean, nor a wholesale administration of moisture. It is at certain periods, and there are two especially, as concerns our present argument, that are of more importance than any.

Fruits taking their first swelling are not in a position to succeed with drought, for although the mere woody parts of the tree may be rambling, it is not from these that the fruit obtains its chief resources. We all know that our Pears, in the main, bear on little spurs, and that these spurs have a very moderate expansion and exuberance of foliage as compared with the gross young shoots, which are principally employed in extending the fabric of the tree; in other words, trying to regain their native liberty as standards. It is these spur-leaves that require steady nourishment, and which suffer most by drought, there being a heavy demand on them.

One particular period on which I lay much stress as to a free texture, is the last swelling, when they are approaching the ripening process. This occurs principally through September, and with some kinds enters October. At this juncture Pears lay on much flesh rapidly, or they should do, and, indeed, it is my firm persuasion that this crisis settles the fate of the Pear more than any other. This period, too, is frequently inclined to drought. It is of no use with Pears in full bearing minding a shower or two, we all know how deceptive they are apt to prove —hard soil wet at the surface, and the crusted soil beneath a body of dust. Now is the time for a little mulching to conduct the water, and as to heat, it will rather arrest the departure of summer ground heat than starve the soil. But one caution. I would never administer pump or well water, unless some warm be added to it. If the water given be 90°, it will do no harm. And in some lean and heavy-bearing cases, let me advise my friends, that a pinch of the real guano in the water will much improve it.

What I have here said of the Pear will apply in degree to most other fruits. The pains taken will no doubt depend on the importance in which the fruit is held.

And now I would ask those who love a garden, why they should grudge the labour required for watering. When an amateur, and not an amateur only, makes a new garden, he is instructed to drain well, and to make every provision for a good garden. Expensive walls are built, ground is trenched, borders made, and much more, and then, forsooth, some think that hereafter the garden will require very little attention or expense. But somehow these things are expensive if well carried out, and what is not? But surely any one who will undergo such expenses, including drainage matters, &c., should not think it too expensive to apply water when requisite. Surely waterpots and a provision of water in gardens were never meant to be confined to vegetables alone. For my own part, I will be amongst the first to recognise the importance of taking off lodged waters, and also to appreciate the benefits of water during droughts.

R. Errington.

THE WILD SAXIFRAGES.

Amongst the flowering plants which cheer us in spring is the lowly *Saxifraga oppositifolia*, "a bonny tufty kind o' plant wi' a wee purple kind o' flower." It is an old favourite of mine, but I find it difficult to keep in the same spot without a change of soil for more than two years; yet in some places I have seen it do well for several years without removal. A friend of mine who grows it extensively has this year lost the whole of his stock, with the exception of a plant in a pot growing in a cold frame, where it will well repay for any extra care bestowed upon it.

It is one of our Yorkshire wild plants, growing on the top of Ingleborough and Pennigent, near Settle. *S. aizoides*, *stellaris*, *granulata*, *tridactylites*, and *hypnoides* may be found in the same neighbourhood, and are common in the gardens of the so-called "hedge botanists" who reside in the upper part of Calderdale.

S. granulata plena (Double-white Saxifrage) is not half so common as it ought to be. It is much grown by the Sheffield artisans, by whom it is highly prized. One reason why it is not so much grown is, it casts up its grain roots in winter, and is destroyed by the birds and spring frosts; but grown in a close tuft the leaves will protect it the same as *S. granulata* (White Meadow Saxifrage). But a pot of it ought always to be grown in a cold frame by those who possess such a convenience.

Your correspondent, Mr. E. Bennett, in writing short articles on the cultivation of "Old-fashioned Flowers" may do good service by describing the culture, &c., of our old favourites, many of which have almost gone out of cultivation, and are only to be found in the gardens of the curious. Many of the most beautiful are rarely seen, and few nurserymen can supply them; but a few short articles may again bring them into notice, and call up old associations.

"There 's flowers that live in memory,
That must for ever last,
Which speak unspoken things to me,
And conjure up the past."

—Rustic Robin.

VEGETABLES FOR HOT WEATHER AND DRY SITUATIONS.

Dry gravelly soils and hot seasons, with very little rain, and artificial watering either impossible or uncertain, render many kinds of vegetables almost useless, or their quality is so indifferent that they are often rejected. Now, though much may be done to counteract the evils of a dry situation acted on by a dry season, yet the two combined to a certain extent defeat the most skilful and assiduous cultivation, unless the latter be assisted by copious waterings of liquid manures. But, as stated above, this can seldom be commanded; and in former communications the mode of dealing with such dry soils has been fully treated on by deep trenching and endeavouring, as far as possible, to obtain a deep healthy medium for the roots to work in. Possibly, even with all this auxiliary help, Cauliflowers will come deformed, Cabbages look blue, Peas become mildewed, and Lettuce run to seed; Celery will also remain stationary, if it does not follow the same course as the Lettuce. Now all these evils are in their way attributable to the want of moisture sufficient to supply the juices necessary for these plants maintaining that freshness which forms their especial merit at table. And as it is impossible entirely to prevent some or all of these and other evils in every case, it would be well to consider what vegetables we have that are capable of resisting dry weather and dry places. Nay, more: There are some things which seem to benefit by such positions; and these being useful and of easy management, it will be well here to describe some of the most popular of them.

Vegetable Marrow.—This accommodating plant is much more profitable than is often supposed, as it is not very nice as to situation, rambling over a heap of rubbish, or amongst stones, or under trees if not too much shadowed; or, in fact, almost anywhere, excepting in a swamp where it is not at home. A few seeds should be sown in April or beginning of May in a flower-pot, and the plants turned out by the middle or end of May. A few spadefuls of good earth may be accorded to each plant if the natural soil of their site be indifferent; and being sheltered a short time, they speedily grow and occupy a very large plot of ground. It is very difficult to say how much; but I never knew any plants yet kept within their estimated bounds, which are generally some odd corner or piece of unoccupied ground, they being seldom seen in the central squares in company with such things as Lettuce, Onions, and the like. Their treatment, also, is the easiest of the easy; being, in fact, nothing more than the cutting off the fruit as it attains the proper size, reserving no more for seed than is absolutely necessary, one fruit generally sufficing for that purpose; and the great numbers of fruit some of the best kinds bear render them, perhaps, as prolific as any class of vegetable we have. Of the kinds grown there are great varieties, and each has its especial admirers. The *Custard Marrow* has been much approved of in the last two or three years; while one, in the shape of a bottle or decanter, is also spoken of as being good; while in the west of England they grow the *Mammoth*, and that to a size warranting its gigantic name. Mr. Lynch, the worthy gardener at Port Elliot, near Devonport, told me he had grown one to the extraordinary weight of 160 lbs.; but it is not usual to allow them to get large when they are grown for cooking purposes. Then there is the old straw-coloured Vegetable Marrow, which is perhaps second to none yet for general utility in abundant bearing, and the other qualifications which constitute a plain useful article. Besides the above there are innumerable intermediate varieties of more or less merit; and now and then some traveller from the East brings home seeds of varieties he has partaken of in their native climate with great relish, and he urgently presses their merits on his acquaintances as being superior to anything he ever tasted in England. Whether this proves in the sequel to be so or not is more than can be affirmed here. Suffice it to say that there is no lack of varieties, and the fruit is generally good and esteemed when cooked in the proper manner. Suffice it to say that the Vegetable Marrow is one of the few vegetables we have capable of resisting the withering effects of a dry hot summer or a dry soil, and deserves especial notice on that account.

Scarlet Runner Beans.—Like most annuals or plants from a tropical climate, this useful legume likes a warm sunny summer; and though it luxuriates and thrives well in a deep rich soil, and unquestionably is more productive in such a one, it is also able to withstand a long period of dry weather in a very dry shallow soil. And very often, when Peas and Cauliflowers have ceased to furnish their quota to the dinner-table, *Scarlet Runners* come in with advantage; a good row of *Scarlet Runners* being, perhaps, the most profitable garden crop we have, continuing in season from the beginning of July to very late in autumn if the weather be mild. In 1857 we had some in December from the open ground, but that was unusually late. Generally, however, they keep in succession till the frost kills the plants. The cultivation has been so often explained, that it is useless describing it here further than saying that the seeds may be sown in the first week of May; and suitable stakes or poles being applied in time, little more is required than to pick the pods as they arrive at the proper size, and they will continue the longer in bearing by having no seed-pods to ripen. There are said to be some varieties of the *Scarlet;* but I know of none better than the old one. The *White Runner*, and the intermediate one, the *Painted Lady*, and the other kinds, as the *Case Knife*, are all inferior for general purposes to the *Scarlet Runner;* but the admirer of novelties may indulge his hobby by growing other kinds if he choose. The features and constitutions of the whole are alike, and each has its admirers at table; the oldest kinds having, as before said, most friends.

Dwarf Kidney Beans.—The same remarks applicable to *Scarlet Runners* apply to these; only the earliest crop may be sown sooner in the spring, and they come earlier into use and require

no sticks or poles, but they do not continue so long in bearing, but succeeding crops may be put in as late as the end of July. But in a general way the *Scarlet Runners* are more esteemed, and, continuing later in bearing, are made to supply the later summer months. Nevertheless, a few rows of *Dwarfs* are always advisable in every garden; and the kinds proper to plant are the *Newington Wonder*, *Liver-coloured*, *Black-speckled*, and *Victoria*.

Ridge Cucumbers.—Although these cannot be said to be substitutes for Cauliflowers or Turnips, yet, as a salad, they are, perhaps, the most useful we have in dry weather, and the hotter the summer the more prolific, in a general way, this article becomes. Sow the seeds in a pan, or flower-pot, which place in heat in the early part of April, and pot them off two in a pot, and gradually harden off in time to plant them out by the middle or end of May, on good well-prepared ground that is somewhat sheltered from the coldest winds, and they will require but little after-attention, except keeping the weeds down, and gathering the fruit at the proper season. Cucumbers though not so rambling as the Vegetable Marrow, are, like it, liable to be attacked by mildew, which is, unfortunately, as prevalent in dry warm weather in autumn as when it is wet and cold. But they are such general favourites that a few plants ought to be grown by every one; and though their name implies their being grown on an eminence, a ridge is, perhaps, the very worst place that could be selected for them. A furrow or valley would be better, as being more sheltered. Perhaps no one is better acquainted with this fact than the cottager, who often grows out-door Cucumbers to great perfection by simply preparing his plot for them on some sheltered spot; and, fixing some faggots on their ends in the ground, forms a barrier around them more enviable than many things having a more dressed appearance—the Vine of the Cucumber attaching itself to the faggots, which are generally placed on a slanting position outwards, and covering the whole with bearing shoots. But these matters having been discussed before, it only remains proper here to name the *out-door Cucumber* as one of the plants capable of withstanding a greater amount of dry weather than most of our other salad plants; and on that account deserving more extended cultivation where Lettuce and the other fast-growing plants are unable to live, and on extraordinarily dry seasons everything fresh and green is acceptable.

In closing this article it is proper to say, that where there is the means of applying water to growing crops, the quantity and quality of summer vegetables may be much increased; but as this is often impossible, it is advisable to pay more attention to those that thrive and do best in dry places, and in hot weather. Many things like both heat and moisture—as, for instance, Onions, and, in fact, most plants make most progress at such times; but dry, hot weather is only adapted to a few, of which those described in this chapter are the most important. But where the means will admit of it such additions as Water Cresses may often be made with little trouble by planting some slips in a neighbouring stream or ditch, and in the hot, dry weather of the dog-days a handful of them will find many admirers at table. It is, however, proper to observe that they ought to be protected from cattle; but in other respects they are very accommodating, and the otherwise-useless ditch-side might be made a source of profit, furnishing the table with one of the most healthful salads we have, and that, too, at a time when most wanted.—J. Robson.

SALE OF CHINESE VEGETABLE SEEDS.

On the 18th ultimo, Mr. Stevens sold by auction a collection of Seeds of Chinese Kitchen Vegetables of Californian growth. The following are the different kinds, their mode of culture and cookery:—

"Tow cok (*Dolichos sinensis*).—A Kidney Bean, bearing a pod about a yard long and about the thickness of a Kidney Bean. A runner and should be staked. It is boiled in its green state like the Kidney Bean. Seems well adapted for winter forcing.

[This is figured in the *Botanical Magazine*, *t.* 2232. It is there stated that in 1821 it was cultivated here by the Rev. and Hon. William Herbert, of Spofforth, who received it from the Cape of Good Hope under the name of "the Caffre Bean." In the open ground at Fulham it produced flowers but no seeds, and remained dwarf; but in Mr. Herbert's stove it twined up to a height of eight or nine feet. The pod should be eaten while quite young.—Eds. C. G.]

"Pak-choy (*Pak-tsae of Fortune*) (*Sinapis sp.*).—The celebrated white Cabbage of Shanghai and Pekin. Grown in beds which are laid out somewhat after the fashion of our Celery-beds, but not so closely planted. Earthed up about the roots, and constantly watered with liquid manure. To be well boiled and strained, and served on toast with butter-sauce. The stem is the most delicate portion.

"Caichoy or Kichoy.—A species of Mustard, with a broad Cabbage-like leaf and a yellow flower, used as Lettuce.

"Hen-choy or Hem toy.—A kind of Spinach, and to be treated as such.

"Hoo-qua.—A species of Melon.

"Toong-qua.—A green Melon, used raw, cooked, or in soup.

"Woong-qua or Hoong-qua.—A species of Cucumber.

"Suiqua (*Luffa of Horticulturists*).—A species of Cucumber or Melon used in soup. Should be trained on a frame of sticks.

"Look tow.—A green Pea. When used it is first steeped in water for about four days until it sprouts and has a radicle about an inch long. It is then boiled in soup.

"Bee i tow.—Something between a Pea and a Kidney Bean, used in soup, &c.

"Pak tow.—A small species of Kidney Bean.

"Hoorg tow.—Another allied to it.

"Yoon si.—A small species of Coriander used as salad.

"The quantities in which the packets of each are made up is (unless when otherwise mentioned) intended to be as follows:—

"Tow Cok, 12 seeds; Pak-choy, 5000 seeds; Caichoy, 5000 seeds; Hen-choy, 5000 seeds; Hoo-qua, 24 seeds; Toong-qua, 24 seeds; Woong-qua, 24 seeds; Suiqua, 6 seeds; Look tow, 100 seeds; Bee i tow, 50 seeds; Pak tow, 50 seeds; Hoong tow, 50 seeds; Yoon si, 150 capsules."

Complete sets of the above sold for from 16*s.* to 37*s.* One set, "with an empty capsule of Suiqua," realised 44*s.*

TREATMENT OF IMPORTED CAPE BULBS.

I have just received from the Cape a present of dry bulbs of the undermentioned kinds, and at this season of the year am entirely at a loss whether to plant them in the usual way at once, or store them away dry until the autumn.

Hæmanthus pubescens, *Nerine undulata*, *Watsonia humilis*, *Galaxia plicata*, *Lapeyrousia corymbosa*, *Hesperantha cinnamonia*, *Lachenalia pustulata*, *Ixias* (of sorts), *Sparaxis tricolor*, *Moræa juncea*, *Hesperantha pilosa*, and *Hæmanthus coccineus*.—Peckham Subscriber.

[The first thing to do with a present or purchase of bulbs fresh from the Cape, is to free them from the bugs and scales which invariably infest the Amaryllid kinds, and all soft kinds like them; but Ixias and Gladioli, and their allies, as Watsonias, Moræas, Hesperanthas, Lapeyrousias, and the like, are seldom insected; but your Hæmanthi, Nerines, and Lachenalias are probably full of them, especially between the scars of the top of *Hæmanthus pubescens* and *coccinea*. The second thing to do, and to never fail to do, is to pot, or box or plant them any time they may come from the beginning of November to the end of October. The third thing is, that all the large soft ones be put in fresh sandy loam, and nothing with it but good drainage, and all the dry-coated ones, and every one that is as small as a child's marble, to be put in rough sandy peat. The fourth thing is never to give them even the slightest artificial heat in any shape whatever, not but that some of the very large kinds will stand forcing, and some of them even require it, but not till they are fairly established, and the pots full of roots. Any bulb, or "root," or tuber that will keep alive in a drawer, or paper, or canvass bag for so many months, surely will not die for being put into a pot instead, provided always that the pot or bulb is not watered till leaves appear.

The best place on this side of the world for putting Cape bulbs in, is the end of a cold pit with one or two lights over them, and the rest of the lights entirely off for the summer; the pots to be plunged quite down to the rims, and to water between the pots occasionally, but never to water a pot till leaves appear, if it were eighteen months hence. But because all this is so very easy and simple, many people choose rather to kill their bulbs, or injure them for life, than submit to such plain treatment. You may be an exception, but depend upon it your man is "a man for a' that," and that he will "do" them sure enough.]

NEW OR RARE PLANTS.

ANGRÆCUM EBURNEUM *var.* VIRENS (*Greenish-flowered Ivory Angræcum.*)

Merely a less beautiful variety of the species.—(*Botanical Magazine, t.* 5170.)

VANDA SUAVIS (*Fragrant Vanda.*)

Native of Java. Flowers white blotched with reddish-purple. —(*Ibid., t.* 5174.)

ASTELIA CUNNINGHAMII (*Allan Cunningham's Astelia*).

Curious half-hardy, rush-like plant. Native of New Zealand. —(*Ibid., t.* 5175.)

RICHARDIA HASTATA (*Halbert-leaved Richardia*).

Native of Natal. Received by Messrs. Veitch & Co., from the Cape. Flowers greenish-yellow.—(*Ibid., t.* 5176.)

CEANOTHUS OREGANUS (*Oregon Ceanothus*).

Hardy shrub. Imported by Messrs. Veitch, of the Exeter and Chelsea Nurseries, from Oregon, through their collector, Mr. W. Lobb. Flowers white, appearing in May.—(*Ibid., t.* 5177.)

AZARA GILLIESII (*Dr. Gillie's Azara*).

One of the handsomest of the Chilian genus. Leaves Holly-like; flowers in elliptical-shaped heads of a golden colour arising from that of the numerous anthers. A cool greenhouse plant, probably hardy in the south of England.—(*Ibid., t.* 5178.)

NEW BOOKS.

BRITISH BUTTERFLIES.*—This is a capital manual of the British Butterflies, and is illustrated with a figure of every species. The work is uniform with "Common Objects of the Sea-shore," "Our Woodlands, Heaths, and Hedges," and other similar works issued by the same enterprising publishers. Besides furnishing description and figures of every species, it supplies every information with regard to their habits, mode of capture, and preservation. We shall, from time to time, give extracts showing the kind of information it supplies, and the manner in which the subject is treated.

THE AMATEUR FLORIST'S GUIDE.†—The author of this work has been long known as one of the most successful and enthusiastic florists of the midland counties, a district proverbial for the assiduity with which its population has for upwards of a century devoted their attention to the cultivation of florists' flowers. In the work before us Mr. Slater handles his subject as an old florist only can. He carries us back to days gone by, and treats us to much amusing gossip about old florists and old flowers; traces the history and cultivation of each flower up to the present time, and descants in a masterly way on the now approved modes of treatment. Mr. Slater is not a mere grower, but a student of the structure and physiology of the subjects with which he professes to deal, and the following extract will afford a good specimen of the way in which the latter part of the work is done. Speaking of the Tulip he says—

"It is found, upon examination, that the bulb of the Tulip does not remain dormant when taken up, but is gradually making progress; and the assertion that the flower-bud is made before the foliage dies down, is proved by ocular demonstration to be false. Cut a Tulip bulb in July, and you will not perceive the slightest appearance of either the new bulb or the flower-bud; but in the second week in August some progress will have been made. The germ is then small, only one-eighth of an inch in circumference and three-sixteenth part of an inch long. In September (the 20th) the germ will then be nearly three-fourths of an inch long, and three-eighths in circumference, and the flower-bud perfectly formed, and one quarter of an inch long. The appearance of the skin next the germ is quite white, and of a woolly appearance, caused, no doubt, by the juices of the skin next the young bulb, having been absorbed in nourishing the new growth, and contains scarcely any moisture, and is like the pith of a branch of Elder or a Rush when cut up the centre. In October the whole of the petals, stamens, and flower-stems are formed, and measure one inch long. From this period to March very little progress can be seen; but at the latter end of the month the two outer skins of the bulb will be decayed, and the germ of the new one at the base of the flower-stem will have increased to about one-twentieth part of the size of a blooming root, and no stamens as yet perceived. In fourteen days from this period, not only will the stamens be seen, but also a streak of black up the centre of the anthers, which no doubt is the formation and concentration of the colouring matter for them; after this the stamens gradually increase from nearly one-sixteenth part of an inch to nearly their full size. In thirteen days (from April 13th to 26th) the beam in flamed flowers shows itself, and the anthers have then assumed their natural colour; yet the stamens are only one-eighth of an inch long, whilst the anthers have been from October their natural length, and perfectly white; and the new bulb is one inch and an eighth long, and two inches in circumference. The (new) bulb grows rapidly when in bloom, and still more so after the flower has been cut for exhibition, or when decayed and cut off, and the whole fine circles of skin (of the old bulb) have become totally decayed, and the flower-stem which was in the very centre of the bulb is now outside."

* *British Butterflies.* By W. S. Coleman. Illustrated. London: Routledges.

† *The Amateur Florist's Guide.* By John Slater. London: Simpkin, Marshall, & Co.

THE SCIENCE OF GARDENING.

(*Continued from page* 56.)

WE have already considered the phenomena attendant upon the union of the scion with the stock in grafting, and we will now examine more in detail the various processes adopted in completing the operation.

Grafting is a more difficult mode of multiplying an individual than budding, because it is requisite so to fit the scion to the stock that some portion of their inner barks must coincide, otherwise the requisite circulation of the sap is prevented. No graft will succeed if not immediately grafted upon a nearly kindred stock—we say immediately, because it is possible that by grafting on the most dissimilar species on which it will take, and then moving it, with some of the stock attached to another stock still more remotely allied, that a graft may be made to succeed, though supplied with sap from roots of a very dissimilar species. Thus some Pear scions can hardly be made to unite with a Quince stock; but if they be grafted upon a young shoot of a Pear that can be so united to the Quince, and this young shoot be afterwards inserted in a Quince stock, they grow as freely as if inserted in a seedling Pear stock.

The reason for this unusual difficulty in the way of uniting kindred species arises from one or more of these causes. First, the sap flowing at discordant periods; secondly, the proper juices being dissimilar; or thirdly, the sap vessels being of inappropriate calibre.

It is quite certain that the ancient Romans were skilful grafters, for Cato (in his *De Re Rusticâ*), gives very full and accurate directions on the art. If it be true, as he asserts, in common with Varro, Palladius, Virgil, Columella, Pliny, and other writers, contemporary as well as more ancient, that they engrafted any kind of tree upon any stock, though of an entirely different genus, as the Apple upon the Plane, and the Vine or the Fig on the Cherry, then, indeed, is there another added to the list of lost arts. But there is just reason for concluding that the ancients never possessed the knowledge thus claimed—not only because it is denied by modern experience and science; but because we know that by stratagem such unions may be made to appear as if effected, and none of the ancient writers on the soil's culture were practical men. Moreover, in considering this question, it must not be forgotten that it was denied that such grafting was possible, even by some of their contemporaries. Columella, in his treatise on trees, has a chapter maintaining by argument the possibility of promiscuous grafting in opposition to some other authors who denied its practicability. Arguments would have been needless if there were examples of success ready for reference.

The objects of grafting are:—1st. To increase choice kinds of plants. 2nd. To increase the vigour of kinds too delicate. 3rd. To reduce the vigour of those which are too gross. 4th. To accelerate the period of fruiting. 5th. To adapt kinds to soils for which they would be unfitted on their own roots. 6th. To renew, or renovate, old kinds.

These six points comprise all that we think it necessary to say on this head for ordinary gardening purposes, and we now proceed to give a series of illustrations of such modes of grafting as are essential in general horticulture. Many others are

practised by our continental neighbours, but they offer no advantages.

1. *Whip-grafting*, called also *splice* and *tongue-grafting*, is the most common mode, and is that almost universally adopted in our nurseries; and, indeed, when the stock and scion are about equal in size, it is, perhaps, the handiest plan of all. The head of the stock is pruned off at the desired height, and then a slip of bark and wood removed at the upper portion of the stock, with a very clean cut, to fit exactly with a corresponding cut which must be made in the scion. A very small amount of wood must be cut away, and the surface made quite smooth; care being taken that no dirt be upon the cuts in this, and, indeed, in all the other modes. The scion must now be prepared; this should have at least three or four buds, one of which should, where possible, be at the lower end, to assist in uniting it to the stock. A sloping cut must now be made in the scion; this cut must correspond with that on the stock, and a slit be made to fit in a cleft made in the stock when heading it. This slit serves to maintain the scion steadily in its place until properly fastened, and is more a matter of convenience that anything else. Care must be taken that the scion fits *bark to bark*, on one side at least.

Where the stock and scion disagree in point of size, of course only one side can touch, and great care should be taken in this part of the operation; and, in the case of a young scion on an old tree, some allowance must be made for the ruggedness of the bark.

The scion being thus adjusted, the whole is bound close, but not too tightly, with a shred of bast mat, care being taken that the inner barks coincide. The clay is now applied, in order to keep the parts moist, and some practitioners pile soil over the grafted part, when near enough the ground. In all the modes of grafting it may here be observed, that *the chief ground of success lies in nicely fitting together some corresponding portions of the inner bark of the scion and stock.*

2. *Crown*, called also *Cleft*, or *Wedge-grafting*.—This is applied to various plants as well as fruits, as, for instance, the Rose, Cactuses, &c. Vines, also, are frequently grafted by this mode. As in whip-grafting, it accelerates the union if the bottom of the scion has a bud or two. In the case of the Vine it is considered necessary to let the stock grow a little before grafting; care must be taken, however, to keep some growing portions on the stock, above the graft, or severe bleeding would ensue. As the name indicates, a cleft, or division, is made in the stock to receive the scion, which is cut like a wedge; again taking care, in case of inequality of size, to make one side fit *bark to bark*. When the scion and stock are unequal in size, both sides of the scion may be brought to fit by cutting the cleft nearer to one side of the crown than the other. The wound is bound over, as in the other processes, with bast, and covered over with clay, or grafting-wax. The Camellia succeeds well when grafted this way, even a single bud will make a plant, provided the stocks are kept in a damp and shady atmosphere for a few weeks after grafting. The stock here, also, should be slightly in advance—that is, should be forwarder in growing than the graft or scion. The best time is just as the sap is rising.

3. *Cleft-grafting*, as represented in this sketch, is only a kind of crown-grafting, and is practised on stocks one or two inches in diameter, and, therefore, too large for whip-grafting. Cut or saw off the head of the stock in a sloping form; with a knife or chisel cleave the stock at the top, making the cleft about two inches deep; keep it open by leaving in the chisel; cut the lower end of the scion into the form of a wedge, one inch and a half long, and the side that is to be towards the middle of the stock sloped off to a fine edge; place the bark of the thickest side of the wedge-end of the scion so as to correspond exactly with the bark of the stock; take away the chisel, and then the sides of the stock will pinch and hold fast the scion. Two scions may be inserted, one on each side of the cleft; but in this case the top of the stock must not be cut off sloping. Bast and clay must be put on as in the other modes of grafting.

4. *Saddle-grafting*.—The top of the stock is cut to a wedge shape, and the scion or graft cleft up the middle, and placed astride on the wedge of the stock; hence the name. The binding and claying are performed as in the other modes, care being taken to make at least one of the sides meet, *bark to bark*.

A modification of this mode is practised in some of our cider counties, where they do not hesitate to practise it in the middle of summer, when the young wood has become somewhat mature. The scion is chosen smaller than the stock, and is cleft about three inches at the lower end, so that one side is rather thicker than the other. The rind of the stock is then opened on one side, and the thick side of the scion introduced between the bark and wood; the thinner portion is carried astride the stock, and down the opposite side, a slight cutting having been made to receive it, on the principle of making corresponding parts meet. This, though tedious, is a very safe mode of grafting, inasmuch as it presents a greater expanse of alburnum for effecting the junction.

5. *Side-grafting*.—This, in general, is performed on trees on which the top is required to remain, and is well adapted for the insertion of new kinds of Pears, or other fruits on established trees, in order to increase the collection, or to hasten fruit bearing. It is also adapted to fill up naked portions of old shoots. It is, however, not so safe a mode as some of the others. Little description is needed; the cut will sufficiently illustrate it.

6. *Chink or Shoulder-grafting*.—This is not much in use in this country, and, indeed, we see little occasion for its practice. When the stock and scion are equal in size, however, it offers an opportunity of gaining the advantage of an extra amount of alburnous union. The cut will explain it.

7. *Root-grafting*.—An old practice, but with regard to deciduous fruit trees it offers no particular advantage over the ordinary whip-grafting, when performed near to the ground. It is, perhaps, better adapted for very large scions, for in many trees such may be used when two or three inches in diameter. When strongly bound they may be soiled overhead, merely leaving a hole for the bud of the scion to come through, which in this case will rise like a sucker.

8. *Peg-grafting*.—This mode is now never practised in England. Peg-grafting never having been practised by ourselves, we shall only make this extract relative to it:—"The scion must be of the exact size of the stock; bore a hole into the centre of the stock, one inch and a half deep; cut the bottom of the scion to fit; the edges of the barks must be very smooth, and fit exactly."

For ordinary garden purposes, we think the whip, the cleft, the saddle, and the crown, the most eligible modes by far.

In all these a few axioms must be kept steadily in view: of such are the following:—

1st. The scions of deciduous trees should be taken from the parent tree some weeks before the grafting season, and "heeled" (the lower ends put into the soil) in some cool and shady place; this causes the stock to be a little in advance of the graft, as to the rising of the sap, a condition admitted on all hands to be essential.

2nd. Let all the processes be performed with a very clean and exceedingly sharp knife, taking care that nothing, such as dirt or chips, gets between the scion and the stock.

3rd. Let the bandage be applied equally and firmly; not so tight, however, as to cut or bruise the bark. For this reason, *broad* strands of bast are exceedingly eligible.

4th. In selecting grafts be careful in choosing the wood, avoid-

ing on the one hand, exhausted or bad-barked scions; and, on the other, the immature, watery spray which frequently springs from the old trunks of exhausted or diseased trees.

Grafting Clay.—Take some strong and adhesive loam, approaching to a clayey character, and beat and knead it until of the consistence of soft-soap. Take also some horse droppings, and rub them through a riddle, of half-inch mesh, until thoroughly divided. Get some cow manure, the fresher the better, and mix about equal parts of the three; kneading and mixing them until perfectly and uniformly mixed; some persons add a little road scrapings to the mass. A vessel with very finely riddled ashes must be kept by the side of the grafter, and after the clay is closed round the scion, the hands should be dipped in the ashes; this enables the person who applies the clay to close the whole with a perfect finish. It must be so closed as that no air can possibly enter; and it is well to go over the whole in three or four days afterwards, when, if any have rifted or cracked, they may be closed finally.

Grafting Wax.—The following recipe has been recommended by a first-rate authority. Take common sealing-wax, any colour but green, one part; mutton fat, one part; white wax, one part; and honey one-eighth part. The white wax and the fat are to be first melted, and then the sealing-wax is to be added gradually, in small pieces, the mixture being kept constantly stirred; and, lastly, the honey must be put in just before taking it off the fire. It should be poured hot into paper or tin moulds, to preserve for use as wanted, and be kept slightly stirred until it begins to harden.—J.

(*To be continued.*)

THE CANARY AND THE BRITISH FINCHES.

(*Continued from page* 43.)

THE CANARY (*Fringilla Canaria*).

German, Der Canarienvogel. *French*, Serin des Canaries.

As we are now arrived at that part of our present task in which a description of the Canary becomes necessary, and of which under domestication there are so many varieties, it will be most proper, in the first place, to devote a chapter to the origin of the species and its varieties.

All naturalists and those who have written on this bird, are unanimous in tracing its origin to the Wild Canary of the Canary Islands, and designated by naturalists (*Fringilla Canaria*). These Islands are situated in the Atlantic Ocean on the west side of northern Africa, and south of Madeira.

Although naturalists have given a different name to the Madeira birds, yet they are by others considered identical, and if there is any difference, it is probably but very trifling, such as may often be noticed among the inhabitants of neighbouring groups of islands, but scarcely sufficient to constitute a distinct species, most probably only a slight geographical variety.

"In the wild state, the prevailing hue, according to the observations of Adanson, Labillardière, and others, is grey or brown, mingled, however, with other colours, but never reaching the brilliancy of plumage exhibited by the bird in captivity; a brilliancy arising from long domestication and repeated crosses with analogous species. Its introduction into Europe is stated by some to have taken place in the fourteenth century; but Bechstein names the beginning of the sixteenth. 'The arrival,' says the author last quoted, 'of the Canary in Europe is thus described:—A vessel which, in addition to its other merchandise, was bringing a number of these birds to Leghorn, was wrecked on the coast of Italy, opposite the island of Elba, where these little birds, having been set at liberty, took refuge. The climate being favourable they increased, and would certainly have become naturalised, had not the wish to possess them occasioned their being caught in such numbers that at last they were extirpated from their new abode. From this cause Italy was the first European country where the Canary was reared. At first their education was difficult, as the proper manner of treating them was unknown; and what tended to render them scarce was, that only the male birds were brought over—no females. The grey of its primitive colour, darker on the back and greener on the belly, has undergone so many changes from its being domesticated, from the climate, and from the union with birds analogous to it (in Italy with the Citril Finch, the Serin, in our country—Germany—with the Linnet, the Greenfinch, the Siskin, and the Goldfinch), that now we have Canaries of all colours. If we had not sufficient proof that Canaries came from the Fortunate Islands, we should think the Citril Finch, the Serin, and the Siskin, were the wild stock of the domesticated race. I have seen a bird whose parents were a Siskin and Serin, which perfectly resembled a variety of the Canary which is called green. I have also seen mules from a female grey Canary in which was no trace of their true parentage."

Ulyssis Aldrovandus, in his second volume of Ornithology, Bologna, 1600, at page 814, gives the following:—"De Passeribus Canariis. The Canary Sparrow, Canary or Sugar Bird, is about the size of a common Pari, with a small white beak coming to a point, the whole of the feathers of the tail green, very much like the bird that our countrymen call the Citrina (Citril Finch), and also that bird called Zisela (Siskin or Aberdevine), which the Italians call Ligurinus, except that it is a little larger than either. The cock is more yellow on the head above the beak, on the breast and belly than the hen. They are fleshy without being fat; the song is a very sharp and agreeable note, delivered with many pleasing variations. Those are preferred that have the smallest body and longest tail, they being the best singing birds."

His plate exhibits a bird of rather long and slight form, much the make of a Chaffinch, and having the back marked like a Linnet.

W. A. Osbaldiston, Esq., in the "British Sportsman," 1792, says of the Canary, "An admirable singing bird, of a green colour, that takes its name from the place from whence they came,—viz., from the Canary Isles, and nowhere else; but of late years there is a sort of birds that are brought in abundance from Germany, especially from Tirol, and are, therefore, called German birds, being a much better sort than the other, though their originals are supposed to have been first brought from the Canaries. These birds—that is, the cocks, never grow fat, and they cannot be distinguished by some country people from the common green birds, though the Canary birds are much lustier, have a longer tail, and differ much in the heaving of the passages of the throat when they sing."

In the last edition of Montagu's "Ornithological Dictionary," (1833), it is stated that the *Fringilla Canaria*, of Linnæus, whose habitation is said by Gmelin and Turton to be India, is not this species, but an apparently spurious one. In the twelfth edition of the "Systema Naturæ," the habitat assigned to *Fringilla butyracea* is Madeira, and that allotted to *Fringilla Canaria* is the Canary Islands. "Habitat in Canariis Insulis," M. Gmelin's edition. India and the Cape of Good Hope are the localities given to *F. butyracea;* but the Canary Islands are still stated to be the habitat of *F. Canaria.* "Habitat in Insulis Canariis, aliisque Mari Atlantici, in littore Africæ orientali, per omnem Europam familiaris, longæva, egregie cantans," &c.—B. P. Brent.

(*To be continued.*)

EFFECTS OF THE LAST WINTER.

Mr. Robson suggests, which I consider is of great importance, that if any one of the readers of The Cottage Gardener would enumerate any varieties of vegetables that may have withstood the rigours of the last winter it would be beneficial to many of its numerous readers, I beg, therefore, to enumerate a few, by stating justly their various merits. Before doing so I may state the position of aspect and locality of our place, which it may be questioned is superior to some. We are in close proximity to the Frith of Forth, but partially exposed to some severe cold winds from the distant German Ocean, which I find very injurious to our spring blossoms of fruit trees.

I have been here for nearly fifteen years, but have never had the hardy Scotch green to give way so much before; they actually dissolved away, and, as Mr. Robson justly remarks, my Brussels Sprouts were very inferior to former seasons in size. And, although well done for, indeed, truly speaking, had I not had my own proved seed saved, I should undoubtedly have conjected that I had a spurious sort. Therefore, we should duly consider circumstances at times before we rashly condemn a neighbour or nurseryman.

However, the Cottagers' Kale stood well with me; and a variety of hybrid Cabbage I raised some years ago with the very object in view of getting a truly hardy and useful vegetable—I named it the *Intermediate* Cabbage, as it will, by making two sowings, continue fit for use till early summer Cabbages are ready. Its female parent is the Cabbaging *Scotch Green* crossed with McEwen's *Dwarf* Cabbage. They do not come every one alike: some are green, others a little tinged with a purple shade on the under stalks of the outside leaves. However, it is a fear-nought for hardiness. I think every person, particularly those in exposed situations, should have a portion of it. I know it is preferred here to either Savoy greens or Scotch greens. The true sort heads equal to any Cabbage, and when at maturity will keep double the time before it bursts in its heads. Sow 1st of April and 21st for a second.

The following will give an idea of some of select varieties of Broccoli I have grown this last season. Three rows of each variety, planted on a quarter of ground forty yards long; at the end of each variety I state what died out of the three rows:—*Frogmore Protecting*, 27 died. Turner's *Early Incomparable*, 12. E. G. Henderson's *Dalmeny Late White*, 3. *Improved White Malta*, 18.—W. Melville.

MAT PRICE'S RESOURCES.

My old schoolfellow, Mat Price, an only son, a smart, tight, idle, little good-natured fellow, left school at an early age to try his fortune in a merchant ship—an occupation quite in keeping with his disposition. No one ever thought Mat would find the fortune, or, if found, would keep it; nor did he care or think much about "grubbing up a lot of rubbish," as he called money. 'Twas all very well for his two old maiden aunts to be looking at every blessed shilling—no comfort in that—miserable work!!! He didn't want more than his pay; and the sooner his lark was out the less "tin" was in his pocket, and the happier he found himself. His occupation on shore was a constant restlessness—an everlasting shifting from place to place—eternally smoking, always chattering, always moving. In-doors without his pipe in the interval of meals, when his sisters were at peace, busily employed in something suitable to the fancy and tastes of each, Mat was equally active in body if not so in mind—he was never still. At one time sitting with his legs across a chair and his elbows on the back, looking attentively out of the window, "yarning" all the while. Of a sudden he would disengage his legs from their inelegant situation, wheel round the piece of furniture with its back towards the table, reinstate his legs and arms in precisely the same situations, and, with "no end" of story-telling, puzzle each busybody to do a single stitch of work; Mat looking at them all the while with his comic face, and saying such things as nobody in the world could help laughing at. After tiring of this hard work, to use his own words, he was "game" for a walk, and his mother, a widow living near a small village, Mat generally bent his steps "towards town," as he called it, for the double purpose of rousing the natives and getting some "backey;" his good-tempered face had a welcome everywhere. At the rectory he professed to be a monstrous lover of flowers, though it was suspected that the owner of the same had the greater share of the admiration. He also declared to Will Smith, the one-eyed pensioner, that no man ever was so "fond" of poultry as he, especially the "spickley ones" (Hamburghs), Will's favourites; but the yarn was the inducement, and a cosy "bit of weed" together. To the couple near the common, old servants provided for by his late father, he declared that his knowledge of bees was extraordinary; and actually, to please Betty, pretended to be much interested, and, in fact, related such wonderful anecdotes as actually to impress the poor old couple with a mysterious awe concerning them.

Thus Mat passed a kind of lolling chatteration life when at home. What he did afloat I am sure I can't say. If an opinion were risked, one would think he was purveyor-general, or, rather, caterer-general for the mess; never a drinker—that is, he was never tipsy, but he had a habit of tasting a drop of everything comeatable, somewhat after this fashion: "Now, my dear fellow, I wonder whether you'll like this sherry—a little just to taste. Stop, let me put a sip into this other glass. Mother likes the dark, now the girls prefer the pale. Steady a bit, for I'm thinking there was a snack somewhere of some rare stuff gone a while ago, and where it is I'm blest if I know. But never mind; old Jones had a pipe here last night, and didn't he put in for the brandy? Here, old fellow, put your lips to this drop of old Cognac; I fancy 'twill suit. And now the celleret is open, and dinner will be ready in about an hour, we shall be all the better for a toothful of these bitters; so let's be quick and take a stroll."

I have said before that Mat was never tipsy, nor anything like it; but somehow or other he was a kind of a kill-care, thoughtless being, without an idea of compassing deceit or mischief to any one. His resources were few; his mind educated but unexpanded, and with merriment inexhaustible. Poor fellow! he returned twelve months after his last voyage, enervated and broken down in health from a succession of ague and other fevers. Although disease had destroyed his health, it had not sapped the tenor of his even disposition, nor soured or distorted that natural kindness which gave to Mat a halo of childish candour and openness now so rare to be met with. He wanted some one to win him on, step by step, into some resource, or rather, I should say, energy to work up a resource. The stores of his mind were dead for lack of use—locked up; still they were there, and only wanted the "Open, Sesame," of some patient and kindred-feeling friend to kindle a desire for their use. Rheumatic in limb, dyspeptic and nervous, dependent not on his own resources but on others, low spirits supervened, and poor Mat succumbed to the unhappy state of those who want a resource.

Twelve toiling, and I may say broiling, years passed by me in the tropics, prevented my seeing or hearing much about my old schoolfellow, except that he had recovered his health and locomotion to an indifferent extent, was married and settled near to his native village, occupying a pretty rural cottage. On my ride of some fifteen miles over to see Mat from a neighbouring town, after so long an absence, I pictured to myself the kind of body in all probability that would astonish my weak nerves—warm climates don't strengthen them. He appeared before my mind's eye as a poor, shrunken, irritable hypochondriac, never pleased, ever grumbling—a restless Tobacco-pipe; his resources a game of dominoes, or cross pin, or some such idiotic amusement, to the infinite disgust of his wife and children. How Mat had lived so long to me was a marvel, and who on earth he had married was a greater one. Well, at last I arrived at the precincts of his domicile, put up my horse at the inn, and, on inquiry from a neat little girl as to the precise whereabouts of my friend, was directed to a neat little trellised cottage festooned with lovely blooming creepers; the approach through a neat and most tasty garden, abounding with fancy beds well studied with flowers, and little labelled sticks showing the situation of seeds, &c., newly sown. Come, come, thought I, this looks very like a lady's gardening; and this rustic summer-house, with the Clematis and a pair of old leather gloves and shears on the seat, looks uncommonly like a man's gardening. A nice, rough, white, well-washed terrier came running down the neatly-kept path—not as dogs unaccustomed to visitors do, barking and noising vociferously, but more from curiosity than otherwise. Again thought I, this looks like care, and cleanliness, and good servants; and, of course, we all know how very much the goodness of a domestic depends on the goodness of the employers. The Lily-white doorstep was reached at last, and a pull at the well-polished bell-handle brought a scrupulously tidy and buxom-looking lass. On my inquiry for her master she familiarised the well-known reply in Devonshire villages by

saying, "Please to step in, sir; master I know idn't far—do 'ee sit down;" at the same time leading the way into a nice little drawing-room, and presenting me with a chair, dusting the seat with her check apron all the while—needless labour, by-the-by; it had undergone the same process all over at six this very morning.

Before much time had passed in scrutinising a number of beautifully executed pencil and coloured crayon drawings set in frames embossed with leather-work, Mat himself hobbled in from the vegetable garden. It appears that a correct description of me had been given by the girl, and knowing of my return from abroad, he made sure, as he said, of his man; and audibly mumbling all along the passage as he advanced, "Old Tom for a guinea, old Tom for a guinea," he bounced into the room with his usual hearty laugh, exclaiming, "And so it is by Jingo!" His compliments on my good looks were not over-exhilirating. He certainly in that respect had the decided advantage of me, for in truth time had peppered my locks as well as thinned them; whilst friend Mat, with the exception of a slight baldness on the crown of the head, and a little puckering at the corners of the eyes (yclept crows' feet), looked younger than ever. His lameness, the result of an inflammation of the hip-joint and incurable, a hindrance to any active exercise, became at times a cause of indigestion, biliousness, and great nervous irritability; but he had resources now, he said, and didn't vex about them as he used to years ago. "Something better to think about. 'T wont pay always grumbling—makes people so confoundedly surly and ugly, and then, you know, folks won't come near you; and reading all day long, stewing in-doors, sets one's brains all of a whiz, that old *coup de soleil* (sun stroke), wo'n't have it on any terms."

"What resources, Mat, have you so proof against ennui and old age?" I inquired.

"Come and see." He led the way, chuckling, to a little room at the rear of the cottage. "Come and see the pets first;" and pushing open the door, I perceived a lady and three remarkably fine girls, seated at a table with books and slates, &c.; the latter evidently undergoing the routine of their daily tasks—in truth being instructed by their mother, a most amiable little woman, and a quondam friend in days "lang syne," for Mat had married the widow of my old chum, Captain ——.

After mutual greeting and sundry scoldings for bringing me into such a rummagy room with the children so untidy, we beat a decent retreat. "There, old fellow," and Mat winked as if to clench what he said, "that wife of mine has saved my life. I was obliged, when courting, do you know, to do all sorts of rummy things—read, draw, tend the fowls, weed the garden, go and gather Ferns and wild flowers, and tell all about them too, or I 'm certain my Mary would never have had me. All out of my way, you 'll say. I took to most of the tasks very kindly, except the Fern and flower gathering. My old leg cried peccavi most vilely, and didn't like the work at all. However, the exercise, doubtless, did me a power of good, and that, poor dear, she knew. Come along;" and through a side door we entered a nicely-arranged walled kitchen and fruit garden. This evidently was Mat's hobby, and it was here he had been employed when called in by his visitor, and he not a little proudly pointed to his trees as samples of successful pruning.

All of a sudden we heard a dreadful scrimmage amongst some fowls very near. Off Mat shuffled, and I after him, to an opposite door. Sundry ejaculations escaping from my guide not quite comforting to a spitish little banty he seemed angry with, we entered a small but well-arranged poultry parterre, merely a piece railed off from a court with some lean-to sheds, still it was neat, and the fowls looked healthy, clean, and happy; all but the banty, which had got caught in some wires, setting the birds of every degree chuckling (the servants called it chockling) most lustily. "Here," exclaimed an elderly female, the cook, "the dratted little pest, he 's at it again. There 's no peace in this chap. If he aint the most obstrepelous little rascal I ever see. Do'ee, maister, giv 'en away to little Jonny up at the pike; he aint no good here. What'e say, maister? shall I put the two hens with 'en, and send 'em up?" The answer, as Betty well knew, was "Well, well, as he is such a nuisance, ask your mistress, and if she says yes, it 's all right."

We were about to quit the yard by a short cut to the front of the cottage when desired to join Mrs. —— in a field adjoining the premises, all of a sudden we heard the most dreadful crash conceivable—something like a fight between the pots and kettles; and, indeed, so it was, for the three girls and the servants were trying to make a swarm of bees settle through the agency of banging every rowable thing together—viz., a poker and kettle, a rolling-pin and milk-pan, a pestle and mortar, and one had a bell in one hand and a pair of tongs in the other. Nothing living could withstand this inducement, or, rather, nothing could live under this inducement. The runaways were already settled on the low bough of a Nut tree, and underwent the process at the proper time of shaking and securing in a hive of straw well smeared inside with honey and sweet herbs. We only saw the preliminaries, as Mrs. —— assured us that with confidence she could leave the rest of the matter to Betty.

A first bell announced the time for dinner to be in a quarter of an hour; so, tiddyvating myself in master's dressing-room, and looking about me to make up the time, I joined the drawing-room exactly as the second bell began its iron call, and taking the hostess on my wing, escorted her to the head of the table, seating myself beside her. Mat with his three merry little girls disposed of themselves in their usual places, and, with a prayer from the youngest before partaking of the creature comforts, we awaited the removal of the covers. Mat telegraphed to his wife, and looking at me on bringing to view the first dish, which had the honour of being the bearer of some splendid trout, exclaimed, "There, old fellow, there 's another of my resources!" and capital they were, and the brown bread, too, so good. A remove brought a couple of fine ducks, with green Peas and other vegetables from his garden.

"Are these some more resources?" I inquired.

"Yes, yes," nodded Mat; "and let me ask you to take some of my liquid resource in this bottle;" and, assuring me it was only cider, I was presented with some equal to champagne, all from his own orchard; a rolly-polly pudding made from a resource of Mrs. Mat's; a cream cheese ditto; a bottle of green Gooseberry wine and biscuits ditto completed the list. The eldest child now gave God thanks on behalf of us all for the blessings we had enjoyed, and so ended our meal. The dessert consisted of preserved fruits, well-stored Filberts, and a bottle of old home-made wine, of what kind the maker herself scarcely knew; it was particularly fine, not too sweet.

Our conversation led to scenes around us. "Well, in truth," propounded Mat, "people would think me a sad lazy fellow; but, indeed, I am not. Lots to do in this acre and a half of ground. We are never idle. There 's the flower garden, the kitchen garden, the fowls, the place shipped up for the Ferns, the bees, &c. Now, talking of bees, you can't think what a pleasure they were to me last spring when I lay a-bed some six weeks in a rheumatic attack—the chaps dodging in and about their hives, and coming home at certain times. I could see them at an opposite window—a kind of cheese-room which my wife had no use for, and fitted up for her pets. 'Pon my word, 'tis wonderful how contented one becomes with the study of domesticated insects and animals. I never thought much of anything till I married; a bee, a fowl, a flower, a Fern, had no charms for me. In fact, I did n't understand them; but now these are resources never tiring—something always to look forward to, and anticipate."

So long a ride before me rendered my absence almost abrupt, as also, you 'll say, the end of my narrative. I parted from these kind folk, having visited them with a heavy heart, and leaving them, after passing the happiest day in my life, with the lightest. All the way home I could not but ponder over the happiness of Mat and his resources. All were out of the dull routine of those amusements and resources which man builds for mortals. The feverishness of the world's giddy round, the vexatious disappointments, and heartburnings of trivial little nonsenses making up the routine of gay life never degenerate the nature, insult the intellect, or acerb the temper of those whose minds have been calmed down by the study of God's resources for man's happiness; and the intervals of joy and contemplation clipped from the busy routine of carrrying out their ever-varying delights are such as confer on man happiness as perfect as earthly bliss can be.—W. H., *Exeter*.

Duration of the Chrysalis Stage of the Butterfly.—The duration of the chrysalis stage, like that of the egg, is extremely variable, and dependent on difference of temperature. As an instance of this, one of our common butterflies has been known to pass only seven or eight days in the chrysalis state; this would be in the heat of summer. Then, in the spring, the change occupies a fortnight; but when the caterpillar enters the

chrysalis state in the autumn, the butterfly does not make its appearance till the following spring. Furthermore: It has been proved by experiment, that if the condition of perpetual winter be kept up by keeping the chrysalis in an ice-house, its development may be retarded for two or three years beyond its proper time; while, on the other hand, if in the middle of winter the chrysalis be removed to a hothouse, the enclosed butterfly, mistaking the vivifying warmth for returning summer, makes its *début* in ten days or a fortnight.—*British Butterflies, by W. S. Coleman.*

ENTOMOLOGICAL SOCIETY'S MEETING.

The April Meeting of the Entomological Society was held on the 2nd ult., with the new President, J. W. Douglas, Esq., in the chair. The long-continued cold weather has been felt by the entomologists as well as the objects of their pursuit, and instead of a goodly supply of recent captures, scarcely ever has there been a meeting of the Society at which so little novelty was produced.

The President exhibited some samples of a cargo of Rice and Paddy (1000 bags, imported from Akyab, in the Bay of Bengal, and housed at Alderman Humphrey's new Hibernia Wharf, Tooley Street, Southwark), which was infested by a small species of Dermestidæ, apparently belonging to the genus Trogoderma, both in the larva and perfect state, to a very serious extent. Some specimens also of the omnivorous *Stene feruginea* were also present with the other depredators. It would be advisable to subject the infected bags of Rice to the action of a kiln or oven, as is now proposed, and often practised for the destruction of the Corn Weevil.

Mr. Samuel Stevens exhibited portions of Mr. Wallace's collection from Batchian, near Borneo, including some new and beautiful species of Butterflies. Specimens of *Telephorus ater*, of Linnæus (a small, soft-winged species of Beetle), taken by Mr. Lewis, at Renfrew. Also, several rare species of Beetles (*Boletophagus crenatus, Elater Pomonæ, Lesteva pubescens*, &c.), taken by Mr. Turner, at Rannock, in Perthshire, were also exhibited.

Mr. Westwood called the attention of the members to the confusion existing in the nomenclature of the large species of Bruchidæ which infest Cocoa-nuts, the seeds of Palms, and other allied trees in South America, of which the *Bruchus Bactris*, of Linnæus, is the typical species. He also indicated several characters for the distinction of the species in this difficult but interesting group of Beetles.

Mr. Douglas directed attention to the new part of Mr. Hewitson's splendid work on exotic Butterflies, which contained figures of the new species described by Mr. Bates, in his memoir on the entomology of the Amazon Valley, read at the preceding meeting of the Society.

The death of Mr. Foxcroft, an indefatigable collector at Sierra Leone, was announced.

DUNN'S SOLID MARKING-INK PENCIL.

In the favourable notice you were pleased to give in your number of the 20th of March last, relative to the applicability of my solid marking-ink pencils for writing on garden tallies and labels, you omitted to mention the necessity of exposing such writing to the action of the sun's rays to produce the black colour. Many, from this, have expected to see the pencil write black at once on the wood tally, or parchment label; whereas it writes only the colour of a common lead pencil, which becomes black by exposure to light. I find the colour vary from brown to black with the thickness of the stroke, and on different woods; but to insure a good black on all woods to please the eye, throw the wood tallies into a pail of water containing about 2 lbs. of common washing-soda, and let them soak for an hour or two, and then spread them out in the air to dry. When required for use damp the surface with the wet finger, write thereon, and expose to daylight (sunlight if possible). These prepared tallies may be exposed to rain immediately without the writing spreading from the action of the wet; but they are equally indelible without the use of soda. Parchment labels just damped with the solution of soda will also come up a better colour; and I have found the vegetable parchment made by Messrs. De La Rue & Co., of Bunhill Row, preferable to that of animal fibre, as it is free from grease, and resists moisture better.

I have now succeeded in making, at the same price, a much stouter point in a similar case expressly for gardeners' use, which I have named the "Gardeners' Pencil." It will last much longer than the fine pencil I sent you some time back, which was originally meant for marking linen only. "The Gardeners' Pencil" is also admirably suited for writing on all coarse-wove fabrics.—Arthur Dunn.

TRADE CATALOGUES RECEIVED.

A Pamphlet on Conservatories, Greenhouses, Pits, Hot-water Apparatus, and Ventilation. By John Weeks, F.H.S., & Co., King's Road, Chelsea, is a copiously illustrated Catalogue of garden structures, heating apparatus, and garden ornaments, with ample descriptions of the various conservatories, greenhouses, and pits, their dimensions and the mode of heating them.

A List of Select Plants Cultivated by F. & A. Smith, Florists, Park Road, Dulwich.—This is an excellent descriptive Catalogue of all the florists' flowers and greenhouse plants worthy of cultivation, and embraces everything that is new and good.

A Descriptive Catalogue of Dahlias by George Rawlings, Globe Road, Bethnal Green.—Mr. Rawlings is well known as one of the most successful raisers of seedling Dahlias, and in this broad-sheet-list is offered all the best sorts at wonderfully low prices.

A Catalogue of Soft-wooded Plants for Sale by John Sampson, Pelsley Nursery, Clay Cross, is a good descriptive list of the articles offered.

TO CORRESPONDENTS.

Notice.—Repeatedly have we requested that no letters of inquiry be sent direct to our departmental writers; for it occasions extra trouble, and is contrary to our regulations. Notwithstanding this request some correspondents persist in disregarding it; and we are compelled, therefore, to announce that no questions, unless sent to our office, will receive an answer.

Back Numbers (*T. S. B.*).—A few of almost all the back numbers of The Cottage Gardener may be had, except some in Vols. III., VI., XI., and XV. If you send us a list of the numbers you require we will inform you which we can supply. The Indices cannot be printed separately.

Mowing Machines (*R. Mackay Wilson*).—It is not an easy matter to decide between the merits of the mowing machines you mention in your communication. Our opinion is, that they all do their work equally well. They are all constructed on the same principle, which was an invention of Mr. Budding; but they differ in details, each maker having introduced improvements of his own. When so many eminent practical men who have had great experience of the working of these machines give such high testimonials, it matters little which of them you select.

Skimming Milk for Churning (*Mrs. P.*).—It will not spoil the butter allowing the milk to stand longer than forty-eight hours before being skimmed; but there is nothing gained by allowing it to stand even so long in summer. We allow it to stand forty-eight hours in winter, and only twenty-four in summer. The skimmed milk is then sweet, and is a great boon to poor people sold at a low price.

Vine Scale and Red Spider (*A Subscriber*).—Whilst the leaves are on the Vine, if any species of scale appears on its stem and branches, the least offensive remedy is to paint over the whole with a strong solution of gum arabic or starch; allow it to remain on for a week, and then wash it off. But the most effectual remedy is to brush them over thoroughly twice, after the interval of a day, with spirit of turpentine. To prevent the recurrence of the plague, a very effective mode, in autumn, is to scrape away and burn all the rough bark, and then, with a rough brush, to paint over the stem and branches with a creamy mixture, composed of half a pound of soft soap, one pound of sulphur, and a quarter of an ounce of black pepper, to four gallons of water; boil together for twenty minutes, and make it thick enough to adhere to the wood like paint. If it does not, thicken it with lime, adding sufficient soot to take off the glaring white colour of the lime.

To Destroy the Red Spider.—There is no plan so effectual as heating the hot-water pipes of the houses, or having hot-water plates, filled with boiling water, placed in the frames, sprinkling upon them flowers of sulphur, which begin to vaporise at a heat of 170°, and then shutting up the houses or frames. The vapour of sulphur is fatal to these insects where the air is thoroughly impregnated with it; and the work of destroying them is completed by syringing the infested plants with water, continuing rather frequently the operation. This last is the most practical remedy to plants in our borders, unless they can be covered over so that the fumes of the sulphur may be confined whilst the sulphur is volatised over a hot-water plate. Potted plants may be submitted to the vapour of sulphur in a similar way; but in every instance be cautious that the sulphur does not burn, or you will kill your plants. The vapour of spirit of turpentine is said to be as effectual as sulphur. On walls, the best plan is to beat up soft soap in warm water, three ounces to the gallon; and to add as much finely-dissolved clay as will make the whole a thick paint. To this add three or four handfuls of sulphur, and keep the mixture well stirred whilst applying it. Let it be daubed on every open space of walling the brush can reach; and, if colour is an object, the glaring yellow can be readily subdued by adding plenty of soot, which by some is considered a necessary ingredient.

House for Bedding-out Plants (*A. B.*).—One four-inch pipe all round your house will be quite sufficient, if your boiler supplies the hot water properly.

Truss's Patent Elastic Pipe-joint (*Arthur*).—We have had no report upon its merits.

Black Hamburgh Grapes—Davallia (*William*).—*Black Hamburgh* Grapes just broken in a greenhouse will ripen their wood quite sufficiently to bear next summer. If the fronds of your Davallia are deciduous, and the rhizomes are covered with tawny bronzy scales, it is *Davallia bullata*. If the fronds are evergreen and persistent it is *D. decora*.

Bretagne Cows (*L. G. Lovell*).—All that we know personally of the Brittany breed is that we saw specimens exhibited at the Royal Agricultural Society's Show at Chelmsford in 1856. They were not much larger than a full-grown Leicester sheep, and very symmetrical. Messrs. Baker, poulterers, Chelsea, would give you further information.

Various (*E. N. N.*).—Our XVII. Volume begins with No. 419 and ends with No. 444. Vol. XVIII., Nos. 445—470. Vol. XIX., Nos. 471—496. Vol. XX., Nos. 497—522. Vol. XXI., Nos. 523—548. Vol. XXII., Nos. 549—574. Your plant seems to be *Arabis alpina nana*, or Dwarf Alpine Wall Cress. There will be no need to heat your vinery artificially after the first week in May, unless the weather is unusually cold.

Price of The Cottage Gardener (*W. H.*).—No *respectable* bookseller would charge more than 3*d.* for an unstamped copy, nor more than 4*d.* for a stamped copy.

Cyclamen Africanum (*J. Turner*).—This, if it is true, will never flower in the spring with you; but pot it now in good soil, and plunge the pot in the open ground, not in a cold pit, and put another pot or something over it to keep it from harm's way, and it will bloom beautifully in the autumn; but never if you once begin to coddle it, or keep it dry one moment longer than you can help. The whole of the *Europæana* Cyclamens should never be allowed to dry, nor hardly the *Persicums;* but they do not suffer so much from drying. This *Cyclamen Africanum* of the nurseries is the kind of *Neapolitanum*, which grows in Italy beyond Rome and Naples, and on to Sicily and Algiers. The smaller-leaved kind of the same species is a native of England and across through the centre of Italy. There is no Cyclamen called *Robusta*, but good cultivation will make them all *robusters!* They are so on our planted-out border covered with glass, and we had them earlier in the season quite as strong as your *robusta*, which, no doubt, is a very free kind of the new crosses from *Persicum*. What would you say to a *Cyclamen giganteum* some of these days?

Twelve Superior Chrysanthemums (*W. H. B.*).—*Alfred Salter*, rosy lilac; *Annie Salter*, fine bright yellow; *Auguste Mie*, carmine, tipped yellow; *Dupont de l'Eure*, carmine and orange; *Hermione*, immense blush flower; *Madame Poggi*, chestnut brown; *Plutus*, bright yellow; *Progne*, the nearest to crimson; *Queen of England*, light blush; *Themis*, very large, rosy-lilac flower; *Vesta*, the best white, perhaps; and *Fleur de Maria*, the finest white Anemone-flowered, are the best dozen of all the large sorts. Any of the florists advertising in our columns will supply them.

Market Gardening, &c. (*An Idle Man*).—It is quite impossible for us to advise you with certainty on the subject of growing garden produce for sale, so much depends upon yourself, and so much upon the neighbourhood. It is, of course, useless to grow what you could not obtain a purchaser for; therefore, the first point to ascertain is, who would purchase from you, and what would they purchase. Some greengrocers would, perhaps, contract to take Cabbages, Currants, Gooseberries, Pot Herbs, &c. Inquire of them, for they will be your best guides. With regard to breeding poultry, we can add nothing to the series of papers we are publishing and have published on "Profitable Poultry." We can say, however, that your Muscovy Ducks will not remunerate you. Rouen or Aylesbury Ducks might.

Names of Plants (*A Subscriber*).—No. 1 is *Rhipsalis Cassutha*, the naked Rhipsalis, formerly called *Cactus pendulus*. No. 2 is *Maranta regalis;* and No. 3, the broad leaf with large white bands, is *Aspidistra lurida*, which is mentioned in every collection of variegated plants, and is grown in stoves along with orchids, but is just as hardy as our market Rhubarb. Out of doors, however, it soon loses the white in the leaves.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

May 23d and 24th. Beverley and East Riding of Yorkshire. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

June 6th, 7th, and 8th. Bath and West of England. At Dorchester. *Sec.*, J. Kingsbury, Esq., Hammet Street, Taunton. Entries close May 7.

June 12th. Essex (Saffron Walden). *Sec.*, Mr. Robert Emson, Slough House, Halstead, Essex. Entries close June 1st.

June 29th and 30th, July 2nd and 3rd. Sheffield. *Chairman*, Mr. Wilson Overend, Sheffield. Entries close June 14th.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

PROFITABLE POULTRY.

We have not yet done with our advice to those who are seeking profitable poultry, and have almost been disposed to class it with the philosopher's stone, the elixir vitæ, and the four-leaved clover. You are wrong, good friends; it is capable of a profit. We must necessarily have a sort of recapitulation as we approach the end of our subject, because it is, as we believe, only by following our rules, a profit may be realised.

The fowls must be neither pampered nor over-fed. Food must not be allowed to lie about to be ready for them when they are hungry, because they would not eat at the regular time. Nor must expensive novelties in the way of food be placed before them, because they do not seem to eat enough. Fowls should always come to their food as the school children do to their annual treat of beef and pudding, tea and plum cake. Granted for illustration's sake, that you have followed our instructions, that your fowls are in first-rate condition; that they have bred numerous chickens; that your difficulty is now, that you do not wish for the trouble of fatting, and that you know of no market within easy distance to which you can send them. You need not to fatten them if they are well fed while running about. They will be fleshy, sweet-eating and juicy chickens. Let them be fasted and killed, then picked clean, and sent to market. They will sell. If you have no market at hand, send them to London, to Leadenhall. We are quite prepared to hear from many, that they have done so, and the result has been only disappointment. Probably three or four little chickens have been sent up, and these not well killed, or in very hot weather, and the price has not been satisfactory. If you have any desire to succeed, we tell you to persevere until you understand properly how to send, and your salesman has discovered that you will be a regular sender. It will answer your purpose to learn to send advantageously, and it will be worth the salesman's while to give you satisfaction. Poultry in London is, at the present time, making unusually high prices, and England, Ireland, and Scotland are *being ransacked* for chickens and fowls. Two only qualifications are requisite—they must be fleshy and young. Their value depends on the latter quality, and the younger they are the more they are worth. We have lately seen in one package fourteen hundred pounds weight of chickens from Ireland, and there arrive weekly many tons of such. Sending to a market is like undertaking any other novel pursuit. The proper way of doing it has to be learned, and tyros must not expect to reap the same reward as the experienced. The prices will be good enough to afford encouragement. It is not less true than remarkable, that the supply of poultry is smaller now than it was before so much interest was taken in the subject. The fact is, every one breeds for exhibition, and the most useful man an amateur can have, the higler, gets tired of calling when he is told that the brood of chickens he has been watching and speculating upon so long are not to be sold because some will be wanted for exhibition. The best should be chosen for this purpose. But let us see what loss is caused by thus refusing to sell. The higler calls during a time of scarcity like the present. There are twenty-seven chickens, six will be wanted for exhibition. Take your time, use all your judgment, and pick the twelve best. You will have fifteen for sale, and the end of April or beginning of May, they will make from 3*s.* to 4*s.* each according to quality. If sold, they will make at 3*s.*, 45*s.*; while, if they are kept till June or July, when poultry is become plentiful, they will have cost at least two months' more food, and will make 1*s.* per head less. In any part of the country, however remote it may be, there will be found persons to collect poultry, if it is to be had young; and in this, as in everything else, as soon as one lives by the trade another will start in opposition to him.

From that time there will be no difficulty in selling surplus poultry. It will be in demand, and at a fair market price. In the spring—that is, from 1st April to middle of June, it will sell at high prices, afterwards it will sell for less, but it will always sell. Every poultry-keeper or amateur who wishes to make his hobby at least harmless, may then do so by taking pains and moderate trouble, either by exhibition and prize-taking, with the consequent sale of birds and eggs, or by the sale of poultry as an article of food.

Many do not wish or need to do this. The amount would not be an object to them. We therefore conclude with one remark to those who are less favoured with this world's goods: Your success will be just in proportion to your painstaking. The supply of poultry as an article of food during the spring months is the most profitable, and the most neglected branch of modern poultry keeping.

SHOOTING FOWLS.

A few weeks ago I sent a very valuable Black Red Game Bantam hen to a friend to go with one of his cocks to breed from. She being fond of rambling, got into a neighbour's garden, who told my friend that he would shoot her if he caught her in again. No notice was taken of the threat: the bird was so small it was thought she could do no harm; but yesterday morning the gen-

tleman made his words good; finding her again in his garden he took his gun and shot her. Can I recover damages by entering him in the County Court?—A Subscriber.

[No one has a right to shoot a fowl, or any other animal, though trespassing on his ground. He should sue the owner of the animal for the damage done by it. No doubt you would recover some portion of the value of the hen; but probably a very small portion, as you do not seem to have taken any pains to prevent the bird trespassing, even after notice was given. The notice given, however, is no bar to your sueing.—Eds. C. G.]

LIGURIAN BEES.

[We have received the enclosed from M. Hermann, and insert it literally.]

"I have seen in No. 602, p. 32, of The Cottage Gardener, some mistake of the nature of bees, concerning the Italish Alp Bees. Your corrispondent does mean or consider it almost imposible to keep the Italish Queens pure, or to receive Drones in the same year from a Queen received from here. As well as I know by my experience, the queens disturbed does seldome make Drones in the same year, also the swarms, beseides if the year is a very good one. What is the reason?

"Swarms and disturbed peoples have not the strenght sufficiently; it is all *things* nature what the Bees do. In such a case the bees have to work for *their own* subsistance and not for Drones, which doe only eat, and therefor they do not make Drone eggs! But if you let show or feel the *Queens* that she has enough of feed and poeple, she becomes lusting (insolent), and lies also Drone eggs. If you take an Italish Queen, you must soon strenghen her with brood, Bees and Honey (the best honey is such which is mixed with 'Pollen' (flower powder). Eating this honey, the queens becomes very enxiouse to lay eggs, feeding plenty during 8 days, you can find immediately drone eggs.

"To have a resulte it is good to have 2 Queens, one to Drones, the other to have for queens education; also to impregnate the queens pure their is sure the result 9 times from 10, if their is maken like I have said in my little Book '*The Italian Alp Bee*,' § 17 and if you have 1 Italian hives between 50 English hives, you may have such a result.

"'In that hives, where you have to impregnate a queen you must take care to have also Italish Drones (whitout other Drones) and give feeding the hive thinned honey in the *early morning*, befor other Drones had mad their prommenate (commely they comes not from itself befor 10 o'clock), and then the queen with her ministers immetially make her mating-excursions, whilst the english Drones are yet sleeping.' For the nom of the English Bee-keeper Gentlemen please to note, that I am ready to send Italish Queens pure race to England *direct* from her, but the commission and payments should be made to Mess. Geo. Neighbour and Sons, in London, Regent, Street, 149. Also, I offer the Beeskeeper my service in every things concerning the Bee cultivation, if any of them should lik to hear some thing from our Bee company, which is very large.

"Also, whoole hives I can send in August, September, and October, and March and febrary, if the commission are large enough to be accompagniated by a man.—H. C. Hermann, *Apiculteur, Tamins, Grisons, Swizzerland.*"

Also, their is a difference, if the queen is young, or one-year old. A queen in this year born, does lay more seldom Drones eggs than such one of one year old.

AN APPEAL FOR ASSISTANCE—SUBSTITUTE FOR GUIDE-COMB.

Would "A Devonshire Bee-keeper" not think of running melted beeswax over his bars as a substitute for guide-comb? The writer has tried this successfully on glass, and does not see why it should not be equally efficacious on wood.—A Renfrewshire Bee-keeper.

[I have to thank those amongst my brother apiarians who have so kindly responded to my "appeal," and believe that through their assistance I shall now have a sufficiency of empty comb. By inadvertently using the term "guide-comb," I have, it appears, unintentionally misled my Renfrewshire friend; since melted wax will not supply the place of comb in furnishing bee-boxes, which is the purpose to which I intend applying it.

Whilst on this subject I may quote a passage from a letter by the late Dr. Bevan to my friend, Mr. Taylor, dated Sept., 1851, in which he notices a proposition then made by me to use melted wax as a substitute for guide-comb. "I am pleased with his (Mr. Woodbury's) notion of laying narrow strips of wax on the bars; but would, as far as possible, confine this practice to every other bar, still adhering to alternate guide-comb."

Upon this plan I have since acted, but do not find it always effectual in inducing the bees to construct their combs with perfect regularity. The tendency they have to lay their foundations on an angular projection is well known; and for this reason the angular edges of the bars themselves appear generally to be the cause of deviation. Acting on this hint I have recently contrived comb-bars of this pattern T. The surface of the projecting ridge being coated with wax will, I fancy, induce the bees to work their combs in a straight line.

I intend giving this contrivance a fair trial by hiving my first swarm in a box furnished with these bars, but destitute of guide-comb. The result, when known, will be communicated to the readers of The Cottage Gardener by—A Devonshire Bee-keeper.]

THE COATINGS OF BROOD CELLS.

I find that "A Devonshire Bee-keeper" questions my previous statement on the larvæ of bees not spinning cocoons. But what he relates at page 15 is not new to me, nor the remarks quoted from Kirby and Spence's "Introduction to Entomology" on the subject. I refer him to the *Gardeners' Chronicle* for 1845, in which he may see what others and myself have said concerning the coatings of brood cells. However, to save trouble, I give the following extract:—

"The coatings of old brood cells I take to be one of the unsettled matters. If you put a piece of old brood comb into warm water, you may separate it into several layers. The structure itself appearing to consist of successive layers. I have just made out five. Now, take a piece of white virgin comb, and you will be ready to decide that the cells consist of but one of these layers. *Ergo*, do the bees recoat them on the emerging of each set of brood? From the manner of the adherence of the layers, I have my doubts as to their being cocoons of the brood."

Those words are not mine, but were inserted at page 295, from a letter I had from Mr. Golding. This excellent apiarian rendered Dr. Bevan great assistance with his book on bees, and his knowledge of the natural habits of the insects is beyond question. Perhaps those come nearest the truth who think that the linings of the cells are the old skins or chrysalids of the brood, instead of cocoons, which they certainly do not spin.—J. Wighton.

[Whether or not the proper term be "spin," we will not waste time and space in arguing, although Kirby and Spence employ it. The only material question is, Do the larvæ form cocoons? and every trustworthy observer and all analogy, we think, agree in the affirmative.—Eds. C. G.]

OUR LETTER BOX.

Drake Persecuting Hens—Owls (*Deodar*).—We are sorry to say there is no remedy for the propensity of which you complain. It is common with drakes, and the only cure is to kill them. There is a ridiculous idea received by some, that it arises from the fact of their having been hatched under hens. We do not agree with them. We do not believe Owls take the young Pigeons, because we know a place in Suffolk where Pigeons and Owls breed in the same barn, and have done so for years. We may be mistaken, and if you have reason to believe you suffer from depredations, you may prevent it by placing nets after dark in front of the Pigeon-house and disposing them so as to catch anything that attempts to enter. Watch the hole at which the Owl enters, and having placed the net in front of it, thrust it in with your hand, then withdraw the hand gently. The position in which the net will be left will permit the Owl to enter, but he will be unable to return.

Dorking Cock (*E. N. N.*).—At two years old he is in full vigour, and may be well mated with hens of eighteen months old.

Roup (*A Novice, Watford*).—Your fowls with rattling in their throats, discharge from their nostrils, and swollen eyes, have roup. We have repeatedly given the mode of treatment. Buy our "Poultry Book for the Many," and keep it by you for reference.

Ants Infesting a Bee-house (*A Hants Bee-keeper*).—If standing on legs, tying a piece of wool round each of them will prevent the ascent of the ants. Putting gas lime, or guano, on their haunts will drive them away.

Transferring Bees (*E. Collins*).—We have so repeatedly expressed our disapprobation of the practice of transferring bees and their combs from one hive to another, that all we can do in your case is to dissuade you from any such proceeding, which would most probably end in the total destruction of your stock. You had better wait till the swarming season before you attempt to people your Taylor's hive, or any other. Your old stocks that forsook their dwelling were, most probably, queenless.

Straw Bee-hive Maker.—A correspondent, "W. H. D.," wishes to know the direction of one near London.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	MAY 8—14, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
8	Tu	Ophrys nidus avis, &c.	30.141—30.032	67—29	N.	—	21 af 4	32 af 7	48 11	17	3 44	129
9	W	Serapias latifolia.	30.217—30.100	63—46	E.	—	19 4	34 7	morn.	18	3 47	130
10	Th	Valeriana rubra.	30.096—30.053	64—37	E.	—	17 4	35 7	24 0	19	3 49	131
11	F	Bryonia dioica.	30.219—30.173	60—34	N.E.	—	16 4	37 7	51 0	20	3 51	132
12	S	Eriophorum polystachion.	30.175—30.123	63—32	E.	—	14 4	38 7	10 1	☾	3 53	133
13	Sun	Rogation Sunday.	30.175—30.055	66—34	E.	—	12 4	40 7	26 1	22	3 54	134
14	M	Montia fontana.	30.098—30.002	63—32	E.	—	11 4	41 7	38 1	23	3 54	135

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 62.6° and 40.2° respectively. The greatest heat, 81°, occurred on the 12th, in 1833; and the lowest cold, 21°, on the 8th, in 1855. During the period 136 days were fine, and on 95 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Keep the hoe in frequent use to stir the surface of the ground amongst early crops, to encourage a rapid growth, and to destroy weeds. *Artichokes* (*Globe*), when the litter that had been used to protect them is taken off and dug in, thin the crowns where too thick. *Artichokes* (*Jerusalem*), may still be planted, if not already done. *Brussels Sprouts*, prick out the young seedlings of them, and all others of the same family, as soon as they are large enough to handle. *Cardoons*, if wanted, sow a small quantity of seed in a box, placed in a gentle heat; the plants to be afterwards pricked out, and finally planted in deep trenches in June. *Celery*, continue to prick out young plants; to be kept well watered in dry weather. *Cucumbers*, keep up a steady heat; thin out the vines, and destroy insects. Keep up the succession by another sowing. *Leeks*, transplant from the seed-bed as soon as they are large enough. *Mushrooms*, if wanted during the summer, by mixing a good portion of cow-dung and loam with the droppings when making the bed, it will keep longer in bearing, and the crop will be sounder and better for the mixture. Water old beds when dry.

FLOWER GARDEN.

Pay early attention to the flower-garden *Climbers* in pots, that they may not get get into confusion for want of staking and tying. Prick out Ten-week Stocks, French Asters, and Marigolds, and sow successions of them and other annuals. Hollyhocks, for late blooming, may still be planted. Put in a stock of Chrysanthemum cuttings for autumn display.

FRUIT GARDEN.

Continue to *disbud* Peach and Nectarine trees a little at a time, and often during the summer, until there is not a superfluous shoot left on: this practice, with shallow well-drained borders, is the grand secret of the successful culture of these trees. Examine *grafted trees*, and loose the matting, if the grafts have taken and the wood is swelling. See that the caterpillars do not get a-head on Gooseberry and Currant bushes. *Figs* to be pruned and nailed; and Haythorne's netting, or any other such screen, if at hand, to be hung over them at night for fear of frost.

STOVE.

Attend in due time to those plants that require potting, and use the finger and thumb to stop those plants of a rambling or loose habit, to get them compact and bushy. Continue to propagate from choice plants, and keep all free from insects.

GREENHOUSE AND CONSERVATORY.

Be careful that a judicious course of watering is daily carried out with all pot plants, and beware of saturating the soil in all newly-shifted plants. The Ericas, and the various other hard-wooded plants that are inclined to get straggling, to be frequently stopped whilst growing freely. Air to be given, more or less, day and night, only being careful to avoid very low temperatures and keen parching winds. Conservatory-beds will require water, as also large plants in tubs.

PITS AND FRAMES.

See that the growth of Balsams, Cockscombs, Globe Amaranths, &c., is encouraged by proper attention. Make another sowing for succession. Get bedding-stock hardened off as expeditiously as possible; but, in removing them from the pits and frames, place them where they can be covered at night in case of frost, and also take care that they are not injured by too sudden exposure to bright sunshine. Care to be taken that the plants are perfectly free from insects before removing them from under glass. Backward stock to be encouraged by heat and moisture, to make free growth to get them strong before planting out; for it is frequently useless to plant them out until they are of some size, and well established. Pot off the rooted cuttings of *Dahlias*, and harden the early-potted ones; divide and pot off the old roots. Pot Tuberoses, if not done before; to be afterwards placed in a hotbed frame. W. Keane.

HORTICULTURAL SOCIETY'S ANNIVERSARY

Before commencing the business of the day, or my part of it for the ensuing week, just allow me a few lines to tell of a subject which has been pressed heavily and earnestly on my attention for the last six months, by the great country party from all corners of the land. What about this Kensington Gore Garden? What is it? What will it be? How does it lie and look? What do you think of it? And fifty other questions of the same stamp.

The first thing I must observe is, that not a single lady, or a married one either, put any such questions; and as far as a public writer is concerned, he is entirely and altogether exempt from the etiquette of answering private letters, and it is quite lawful for him to print and publish every scrap that is written to him, and not marked "private," without committing a breach of privilege; also, that one of a staff of writers on a public journal need never take the least heed of anything, or letter, which is sent to him on the subject of the work, except it comes to him through the Editor or Editors, as the case may be. That will explain the reasons why the Kensington Garden and other gardens, and plans of gardens, have not been put forward till May day.

That day being our anniversary day in the Horticultural, we met this time down next the new garden at Kensington Gore, in the Lecture-theatre of the Kensington Museum. The Earl of Ducie, Vice-President, was in the chair. The Doctor read the Report of the Council, which was a *résumé* of the facts and scraps of information which appeared, for the last year, in the "Proceedings" of the Society, respecting the rise and progress of the good luck of the Council, and of the Society, in getting such landlords as the Royal Commissioners of the Exhibition of 1851; such a site as that for the new Garden; such a num-

ber (over 600) of staunch new members during the year; such practical and persevering men as Mr. Eyles, to be head curator, both there and at Chiswick, and Mr. Hogg and Mr. Moore to be Secretaries for the Fruit and Floral Committees.

"Plans" of offices for the exhibitions of these Committees, "to form the principal entrance to the Garden, prepared by Capt. Fowke, R.E., have been accepted, and the building is now rising rapidly." And unless bad luck should fall on the shoulders to the wheel which moves the Council, they "believe the Garden will be for the most part completed by Midsummer in next year." Chiswick Garden is already fit to be seen, and well worth seeing, under Mr. Eyles's eye. His other eye being on at Kensington. Lots and lots of flowers have been sent by friends to Chiswick, for the Floral Committee to decide on; annuals, perennials and shrubs, hardy and tender; and the notion that the Floral Committee take heed of florists' flowers only, as their first rules clearly and distinctly implied, has no foundation, and never had, in fact. The best private collection of bedding plants came up from Shrubland Park to the Chiswick Experimental grounds, just as was the case at Surbiton when I despaired of the Society and took to experimenting just to keep the thing alive; and now, at the end of twenty-two years, after taking the first leaf out of my book, anent fine-leaved plants, curious-looking plants, variegated plants, and Ferns for exhibitions, the Society have done me the honour to accept my scheme for "keeping the thing alive," by instituting experiments on their own account for the use of us all, and on a metropolitan in lieu of a suburban scale. To show that I had felt this an honour instead of an opposition, I have just consented to be put in nomination for election on that very Floral Committee; and unless I am black-balled at the voting, I mean to attend the meetings and consultations just as often and as diligently as if it were for the first experimental garden in England, as it ultimately will be, no doubt; but for the first few years I am quite sure they will not exceed us of Surbiton in any one thing, except in their greater extent of ground. But I shall allow a sub-committee of theirs, or our own number, to be the judges. I shall invite them down when we have the best foot foremost, about the time of the white-bait dinner.

We were told in the report that Mr. Hogg has the very same confidence in the Fruit Committee, and, notwithstanding the Pomological experiments, that he has made a present of his own private experimental collection of pyramid Pear trees to the Chiswick Garden. We of The Cottage Gardener having always pointed out the right way for the sluggards of Chiswick to go in, we are now quite free and willing to go along with them for the public good, since they have taken the right direction. As for me, I shall be only a man under authority if I am elected, and shall have to defend but one captain—"our own" Secretary, Mr. Moore; and if I see or hear a puff against his authority, I shall fire right and left and round the corner. But I believe there is a treaty, and that there is little chance of any more foreign interference.

The ballot for the distribution of plants is to go on this summer; and as soon as they can meet with a thorough good collector, who can pack well, and write intelligent journals of all his sights and travels, they mean to send him abroad. But one clause in their "points" of a good collector is that he be acquainted with the Spanish or Portuguese language; and that must, most certainly, have originated with some one of the old mismanagers of Chiswick. The thing sounds well, but I know how it will end:—They, the new Society, will be "done" as brown as a berry, and as sure as my name is Donald, if they will insist upon that qualification. I have conducted plant-collectors myself in South America, where those languages are most wanted, from under the line to the confines of Texas, and from the burning beach to the snow-clad caps of the Cordillera, and I never heard a word about the use or abuse of Spanish or Portuguese; but I have known the possessors of five continental languages, engaged on the same errands, do that which they ought not to have done, and make English gold and English influence pay for it, and that should not be. No man, or set of men, who transacted business in this selection for the old Horticultural Society for the last thirty years should be now trusted with a voice in this matter; Mr. Fortune being the only fortunate collector for them the whole of that time, and that just because he had a way of his own for doing business quite contrary to the "rules, laws, and regulations" of the old Chiswicks.

When the pressing strain on the Council is got under, they intend something "very different" from the present "Proceedings," in the way of periodical instructions in the new order of things. A chapter now and then from the pen of a ready-writer collector abroad would be just the very thing to keep us all alive, and to shun the horrid old stories translated from continental books, unless they happen to be something different from what we ourselves have been discussing here for the last twenty years.

Three of the Council retired then in their rotation, and three others were balloted into their places without a single vote being against them. We were then directed to look at a model of the Garden, and many plans and sections of it, and its appurtenances, in an adjoining room; also, at models of the arcade which is to form the boundary of the Garden, and the site of the Garden itself. The model of the Garden was not yet completed, nor the models of two samples of the arches which are to form the grand arcade; but I believe the plan of the Garden is fixed, arranged, and passed, and any suggestion for the farther improvement upon the "highly decorated Italian arcade is yet open for consideration." That is just how the highest authorities in such matters act for themselves. They first of all elaborate all their skill on their own designs, then model them roughly for their own eye, and keep them on view for weeks before they pass their own final opinion on them. Some show them to their critical friends, and some are very jealous of doing so, some few improve on their own plans as they see the work carried on; but that is one of the greatest follies in the world, as it fairly opens the door to the contractors for no end of "after claps," or extra bills for no end of things, after you once swerve one inch from the design adopted. If Sir Ronald MacDonald were my contractor, and he suggested to me the value of a door nail in alteration of my design after the work was begun, I would just look that his left hand was not in my right-side pocket,—neither kith nor clan could save him in the plot. But there is a trick in trade that all young people newly married ought to be up to, before they begin building and gardening. My lord may have heard of the dodge from his "governor," and would leave everything to his agent after the plans were passed; but my lady, innocent as Eve, will assuredly be taken in the same trap, if she goes near the works by herself. She will be complimented on her superior taste and acquirements, and her opinion will be eagerly sought for on a hundred points connected with the work in progress, and, without giving it a thought, she assents to any propositions for improvement. The thing is done, and at the end of the story my lord must pay another thousand or so, for the improved taste of her ladyship. It will then turn out to her credit that she suggested such and such and every such improvement, and he must pay for them, and, of course, he will; but Lady Mary will never be complimented that way again, for she will refer all such things to somebody else, as she is "too busy just then," going to speak to the gardener. You may depend upon it there will be nothing of that kind at Kensington Gore, for no young-married couples are concerned there; all are old hands and good judges, and where they run short, they know

the right man in the right department to whom to apply for advice. As in the case of Captain Fowke, R.E., aforesaid, "with whom they must also associate Mr. Henry Cole, C.B., and Mr. Redgrave, R.A., the two principal officers of the Department of Science and Art."

The ground for the garden is on the other side of the road, nearly opposite where the Crystal Palace of 1851 stood. It lies on a gentle slope to the south in the form of a parallelogram or long square, or just in the form of this page; and if you rest the top of The Cottage Gardener on a pack of cards or anything as thick, and the bottom of the page, or number, on the breakfast-table, and place yourself with the back of your head to where the sun is at twelve o'clock, you are just at the bottom of this garden, looking upwards and to the north. Where you see "Gardener and Country Gentleman," in the centre at the top of the page is where the large conservatory is to be. From each end of the conservatory a boundary-line curves a little to join the black lines which enclose the printing. These two black lines down each side of this page are the boundary of the Garden, which is to be the back of the Italian arcade all round, just like the back wall of the colonnade at the Crystal Palace; but instead of a roof and frontage that way, the whole will be in beautiful and highly-finished arches, roofed and fronted with glass. Without stopping much to look at things, a sharp walker would take just half an hour to walk all round, in the dry, under these arches, or in this arcade, the distance being three quarters of a mile. Then looking out on the garden from any part of the arcade, going up one side or down the opposite side, the garden straight across is quite level in any one place. You recollect the grand terrace at the Crystal Palace is not so, but on the slope, owing to the steepness of the ground, no part being level across the terrace but the walks. Here the whole garden is level across at any part. Look at the page again, and in the right hand corner where the black bottom and side-lines meet, is where the offices are now being built, and where the main entrance to the garden will be fixed. That is the most fortunate entrance to a public garden in England or Scotland, for I have seen them all. The reason is, that you enter the Garden with the sun at your back, and more, that you have the whole Garden rising gently before you the moment you step on to the centre walk, and that you can see aught but the sky line beyond the conservatory, up on the highest part of the ground, or as you would see the Crystal Palace, if the main entrance were down below the beasts beyond the flood, where the broadest and centre walk ends. There are to be two terraces and flights of steps, but not many steps at a time, as the slope is very gentle. On the centre of the lower terrace is to be a lake, in the same shape as the Garden, and on each side also are to be pieces of water something of that shape. Coloured sand or gravel, or broken stones of different colours, are to form the Italian parterre; but the plan was too far from my eye to read the references, and I have no notion of how the display of flowers is to tell. One thing I can tell is, that I never yet knew a plan of a flower garden by an architectural landscape gardener which could be planted after the fashion of the ladies of the present age. Sir Charles Barry is as clever at hitting off such plans as any one I know. I have seen him sketching off plans before a highly artistic lady by the dozen, every one of which was most beautiful, but not one of them, or one out of a thousand of such could be planted on the present style. Let us hope Mr. Nisbet has been more modern at Kensington Gore. But now to complete the plan of the new Garden at Kensington Gore, let us suppose an outer slip of ground, at the bottom of the page, and at the bottom of the Garden, beyond the arcade, which may be two acres, more or less: that extra part is for the grand exhibitions on fine days; but when it rains, on the Chiswick scale, the show may be under glass, safe as home, beneath the arches of the arcade, and a better plan was never conceived.

D. Beaton.

The three new members of Council, in room of Messrs. Scott, Bohn, and Col. Challoner, who retired, are H. T. Hope, Esq., of the Deepdene; H. Pownall, Esq., Chairman of the Middlesex Quarter Sessions; and Mr. Robert Wrench, of London Bridge. We cannot but rejoice at the wisdom of the selection. In Mr. Hope we have a liberal patron of horticulture, with more than ordinary means for promoting the object. Mr. Pownall has long been known as an ardent supporter of the Society in its horticultural character; to him it is indebted for the straightforward independent course he took at the last anniversary meeting, when he seduously watched over the interests of the Society in the new arrangements that were about to be entered into, and which greatly contributed to securing better terms for the Society than were at first proposed. In the appointment of Mr. Wrench we have an evidence of the determination to preserve the professional character of the Council, and to assimilate it more to what was the constitution of the original Councils of the Society. For a long series of years the Councils were composed of a number of amateurs without any of the practical element, or even gentlemen of business habits among them; and it is not, therefore, wonderful that under such government the Society should have fallen into difficulties and disuetude. In the Council, as now constituted, the nurserymen, seedsmen, and professional gardeners are represented by Mr. Veitch, Mr. John Lee, Mr. Wrench, and Mr. Edmonds; and these working in unison with such gentlemen as Mr. C. Wentworth Dilke, Mr. John Clutton, Mr. Pownall, Mr. Godson, Mr. Blandy, Mr. W. Wilson Saunders, Rev. L. Vernon Harcourt, and Earl Ducie, there is every assurance that the interests of the Society will be well guarded, and its usefulness greatly promoted.

During the course of the meeting Mr. Dilke took occasion to remark, that although it was stated in the report that the Society was to expend the sum of £50,000 in the formation of the new Garden at Kensington Gore, the Fellows of the Society were not to be surprised if at the anniversary meeting next year they should find that sum had to a small extent been exceeded. The Society was bound by their agreement with the Royal Commissioners to lay out £50,000 on the ground, but that made no provision for furnishing and fitting up offices and other necessaries, such as provision for the great exhibitions and other matters which constituted the moveable property of the Society; and hence it was reasonably to be expected that at the next annual meeting a sum of perhaps £5000 or £6000 additional would have to be accounted for. He also stated that he and the noble Chairman had just returned from attending a meeting which had for its object the opening up of a new road across Hyde Park, leading from the vicinity of the new Garden to Tyburnia, and which, if carried out as he hoped it would be, would have the effect of bringing into close proximity with the Garden that vast and influential district of the metropolis.

PEARS ON QUINCE STOCKS.

I observe Mr. Errington is possessed with the common idea that the blossoms of the Pear on the Quince stock are developed earlier than those on the Pear when it is grafted on the Pear stock. This is a subject quite worth inquiring into; and the experience of those who have watched their Pear trees carefully would be of value to your readers.

For several years past I have felt much interested in this matter: and having Pear trees on Quince stocks, and the same varieties on Pear stocks growing very near to each other, I have not neglected my opportunity. It will be as well, perhaps, if I confine myself to three popular sorts. I will commence with the *Louise Bonne of Jersey*. I happen to have two fine pyramids of

this sort, each twelve years old, and growing within five feet of each other. They have been pruned and manured exactly alike. I have been to-day to look at them, and I find their blossom-buds precisely in the same state—viz., on the point of bursting. I have never yet seen the tree on the Quince stock open its blossoms a day before its neighbour on the Pear; but I have observed its blossom-buds in mild early springs commence to swell and seem *ready* to burst a week or two before those of the tree on the Pear stock; but the blossoming time has been for years as nearly as possible simultaneous. My additional remarks on these two trees are as follows: The tree on the Pear stock is larger and stouter than its neighbour on the Quince; it makes more vigorous shoots, which are much inclined to canker. The tree is indeed, although so vigorous, infested with canker in its bearing branches. It has never borne any fruit in seasons in which its neighbour has failed; but on the contrary it has, in Pear seasons, given perhaps a dozen of Pears, green with a slight tinge of red, spotted and inclined to be deformed; while its neighbour has borne from ten to twelve dozen with clear rinds of a rich rosy red and piquant rich flavour.

I have in like manner trees of *Williams's Bon Chrétien*, some on the Pear stock and some on the Quince. The latter in a mild February look as if their blossom-buds must burst into bloom before those on the Pear stock; but I have never yet observed them to do so, and I have never found my trees of this sort on the Quince to fail in giving a crop when those on the Pear stock have borne: in short, in what are called Pear seasons I have seen no difference in them as regards fertility. This sort does not canker under any circumstances, and is such an abundant bearer on the Pear stock as rarely to require the Quince to give it increased fertility. The only advantage gained by grafting it on the Quince—and it is of some importance—is the facility of cultivating it as a low bush in gardens. Its large fruit are thus safe from high winds, which so often strip a standard tree of its fine fruit.

My third sort is the *Jargonelle*. This is not quite happy on the Quince stock, as it swells over largely at the junction of the graft with the stock; requires a rich moist soil, and to be planted so that the earth comes up to the junction, but not so as to cover it, otherwise the Pear takes root, grows away at a furious rate, and its poor foster-mother the Quince dies. If confined to the Quince stock this sort does not canker—as it inevitably does in moist soils when on the Pear stock—but bears most abundantly. I have noticed this variety more particularly, because, when it is grafted on the Quince, its blossom-buds often begin to swell, and seem ready to burst even as early as January, but its blossoms do not open earlier than those on trees on the Pear stock; and in like manner with the two preceding kinds, I have never observed the trees on Quince stocks to fail in bearing, unless those of the same kind on Pear stocks have also failed.

I have thus far given faithfully the result of my observation for several years.

My soil may act on my trees in some manner not yet understood; it is a sandy clay, full of chalk stones; neither early nor late, neither wet nor dry. If on Mr. Errington's soil Pear trees on the Quince stock open their blossoms a week or so before the same kinds on the Pear stock growing as near together as mine are, and if by such early blossoming his Quince-stock Pears fail, while his Pear-stock Pears bear, it will be very interesting to inquire into the cause, and the same with others of your numerous correspondents who feel interested in this question. The trees to be tested should be of the same kinds, be planted near to each other, and have exactly the same culture.

I fear I am not a very "knowing person," but I think I know *something* about Pear culture, and so I will give a list of Pears that will *not* do on the Quince *when brought into immediate contact with the stock;* but *every kind of Pear known* will succeed on it if proper skill be exercised by the cultivator—yes, even the *Monarch*, the most refractory of all, will do so, and soon become a fruitful small tree.

The road to success is very broad and straight, the cultivator has only to bud or graft—a free-growing sort of Pear, such as the *Beurré d'Amanlis* (perhaps one of the best) or *Conseiller de la Cour*—on the Quince, and after it has grown a year or two, to graft or bud on the graft or bud of the *Beurré d'Amanlis* the sorts that do not grow freely when in immediate contact with the Quince stock. The following list will, I trust, gratify our excellent and experienced friend's wish as expressed at the foot of his article, page 59.

In giving this list of Pears that will not succeed on the Quince when in immediate contact with it, I must premise that some few of them may do pretty well in very rich and fertile soils; but, as a general rule, they are more safe when grafted or budded as above described. It is called "double working" by nurserymen.

1. Aston Town
2. Autumn Bergamot
3. Beadnell's Seedling
4. Brown Beurré
5. Beurré Berckmans
6. Beurré Clairgeau
7. Beurré de Capiaumont
8. Beurré Bosc
9. Broom Park
10. Bishop's Thumb
11. Beurré de Rance
12. Comte de Lamy
13. Comte de Flandres
14. Doyenné d'Eté
15. Doyenné d'Alençon
16. Duchesse d'Orleans
17. Eyewood
18. Gansel's Seckle
19. Gansel's Bergamot
20. Grosse Calabasse
21. Hacon's Incomparable
22. Hessel
23. Huyshe's Bergamot
24. Huyshe's Victoria
25. Jargonelle
26. Marie Louise
27. Monarch
28. Ne Plus Meuris
29. Seckle
30. Swan's Egg
31. Suffolk Thorn
32. Van Mons Léon le Clerc
33. Zéphirin Grégoire
34. Zéphirin Louis
35. Uvedale's St. Germain

The effect of double working on many of these sorts of Pears is very remarkable; for, instead of waiting from seven to ten years before they commence to bear, they bear well at the end of three years. No. 19, from being one of the most shy bearers known, becomes remarkably prolific. It is the same with Nos. 2 and 27; No. 26 forms at once the most charming, small, prolific garden tree ever seen; and it is most probable that 23 and 24, which are of the same race, will do the same.—B.

LIME WATER FOR POTTED PLANTS—HEATING THE WALTONIAN CASE.

Is lime water injurious to pot Roses, pot Chrysanthemums, &c.? Are there any plants to which it would be injurious? What quantity of lime to a gallon of water? These questions are asked with a view to expel worms from pots. Will liquid manure composed of superphosphate of lime have the same effect? and would this kind of liquid manure suit Chrysanthemums in pots? as guano water is thought too heating.

There has been a good deal said about the Waltonian Case lately. "Rose" has had one of the earliest made, and she has never found any difficulty in keeping up the heat. She has been able to get it as high as 95°. It burns from 10 P.M. till 9 or 10 A.M. without any attention, and "Rose" only dressed it twice a-day. Colza oil she believes to be the best. "Rose" does not think the candles likely to answer as well as the original lamp, besides being very much more expensive.—Rose.

[Lime water is not injurious to any pot plants that we know. The strength of lime water is not so much from the quantity of lime used as one might think. We have used from 1 lb. to 5 lbs. of unslaked lime to the gallon with exactly the same results. Superphosphate would benefit the plants, but would not expel worms.

You are quite right about the Waltonian.]

PROSPECTS OF THE YEAR 1860.

The unusually long winter which has visited us, and from which we have scarcely emerged, has, indeed, stricken much of the fair produce of our gardens. We had fondly indulged the hope, that in consequence of the long-continued severity of the weather, we might hope for a better spring, but the spring has hitherto (April 29th), paralleled the winter; and although the frosts have not recently had the marked intensity which sometimes characterises them, there has been a cold, cutting, north-easterly wind, which has during the day, when the coverings have been raised, done infinite harm to the tender embryo fruits of the Apricot, &c. Let us hope that its time to leave us draws near, and that we are on the advent of a glorious summer.

This is, indeed, a season of the year which has great demands upon the painstaking gardener—upon him, I mean, who is not satisfied with second-rate performances, but who essays to go first, and to keep there. See what a varied claim is now upon him for all his supplies. In addition to culinary articles, see how great a demand the flower-garden makes at this time, and look at the varied means of protection which he must adopt, and

that, too, with the utmost anxiety and watchfulness, ever in doubt and fear, and having a constant knowledge of his extreme liability to fail, after having used every exertion.

We have now passed (we may suppose) through the worst ordeal of this long winter; but it is still a matter of lottery, whether we may not yet have another "killing frost" to damp our hopes and kill our fruits. The *Apricots* are finely bloomed this year; but I find that although we have plenty of fruit set well, that the very cold, drying, harsh winds have made many of the young fruit abortive. *Pears* promise magnificently, as also do *Plums* and *Apples*. *Strawberries* have been much injured by the winter, and will, probably, in many places, be an indifferent crop. Young plants of this fruit have suffered most. The *Gooseberry*-buds have been much thinned by the devastations of myriads of hungry birds, from which the severe winter had taken the supplies of other food.

On this day (April 29th) we have the first symptoms of spring weather: we have a most powerful sun, and a most vivifying atmosphere, at a temperature of 55°. Under such influences, if continued, drooping vegetation will soon revive, and the heart of man will rejoice.

In the flower garden there is much beauty to anticipate, and from the backwardness of vegetation we may expect a concentration of floral effect. Our Ribes, double Furze, scarlet Thorns, Spiræas, and Rhododendrons, must all be later by a month than is usual, and this will probably do much in deferring the gaiety of the garden to the summer months.

To the planter of beds in masses a most exciting time is coming. In another fortnight he will commence the planting out of his varied tribes of tender plants, and a most anxious time this will be for him. If he has the good fortune to escape those late visitations of spring frosts, great supervision and care will be necessary, in order to make everything prosper.

We may look forward during the ensuing season to the proving of many interesting plants for the flower garden. One of the lions of the day is the *Spergula pilifera*, and from all I have tried, or can collect information of, I do not think that this will succeed as a general lawn plant. It may do for small plots or terraces, or such situations, but will never become a substitute for extensive grass lawns. It does, indeed, require much caution and foresight in the present day, not to be allured too much by the specious character of the productions which are so ingeniously offered for our patronage, and which almost carry conviction "against our will."

The culture of the beautiful Dianthus sent out by Messrs. Carter and Henderson, will form a striking feature in our flower gardens, and so will the beautiful and elegant species of gramineous plants furnished by the same parties. Added to these we have to enumerate the Mauve Verbena, *Gazania splendens*, and the Geraniums which our friend Mr. Beaton is constantly routing out. The varieties of Tropæolums, too, are most useful additions, which will amply repay for cultivation. While the new classes of Gourds and Squashes form a most interesting, useful, and ornamental class of quite novel plants.

Although the past winter of 1859-60 has been an unusually severe and destructive one, it has been characterised by a remarkable want of sun, and has been most unfavourable for all things which have been forced. To prove this, we need but refer to Covent Garden Market, and note the prices of Strawberries there.

In the vegetable department we have a clear course to pursue; we have now little, or none, of last year's crops remaining, and all has to be provided afresh. Let us then set-to with redoubled energy; let us plant and sow with diligence, and endeavour to secure crops with moderate luxuriance. Various little facts have come under our observation during the past season, let us turn them to account, and deduce useful inferences from them. Let us endeavour to be provided for every contingency. Let us foresee that it is better to be armed to meet evil, than to have it come upon us unawares. Henry Bailey, *Nuneham*.

MOVING EVERGREEN OAKS AND PORTUGAL LAURELS IN MAY.

Assuming that you were obliged to remove evergreen Oaks, and Portugal and common Laurels at this very unseasonable time, how would you do it? And having done it, would you put dry—that is, dead litter about the roots on the surface of the soil?—A Constant Subscriber.

[Evergreen Oaks and Portugal Laurels are the two most difficult evergreens to move in May. The utmost care in taking them up, and in watering in the soil among the roots as they are planted, then well mulched on the surface, and watered over the mulching once a-week or ten days, and plying the garden-engine often over the leaves and branches, are all that can be done; but even then there are ten chances to one against them.]

LUMINOUS INSECT.

Can any of your correspondents inform me what insect it can be which is itself luminous, and leaves phosphorescence in its track, not being a glow-worm? A few evenings since I observed it in a saucer of Calceolaria cuttings in my greenhouse. It was small, and moved rapidly; but I could not catch it. The phosphoric light was very vivid, and lasted nearly a minute after the insect had passed over the surface.—W.

[We have no doubt that the insect above mentioned was the *Scolopendra* (or *Geophilus*) *electrica* (one of the family of the centipedes), often found in damp earth. We believe that it is chiefly during pairing time the luminosity is most vividly developed.—W.]

MILDEWED VINES AT CHIPPENHAM.

It was a short time before the close of a lovely autumnal day in the year 1858 that I first walked down the walk on the south side of this garden, which is the one that leads to the vinery; the proprietor at the same time telling me there was something very uncommon there to be seen. I, of course, should at once have made up my mind to see a first-rate house of Grapes had he not before told me that he had not had a bunch the year before; neither was there a bunch there or had staid there to ripen that year. What in the world, then, could there be there, I thought, to be so very uncommon to see? Well, I was not kept a very great length of time in suspense; for on the instant that we entered the doorway there it was to be seen visible enough; yes, and in one of the most glaring garbs that it was possible for mildew, that ravager of the Vine, to appear in.

Here, then, was a house with nine Vines in it, seven of which were planted five years before the above date, and the other two three years later, and arranged in the house as follows:—No. 1, at the eastern end of the house, *White Muscadine*; 2, 3, 4, and 5, *Black Hamburgh*; 6, *West's St. Peter's*; 7, *Barbadoes*; 8, *Black Hamburgh*: and 9, *Black Cluster*. Under the name of the first (no feather in the man's cap that supplied them), but was this year on its extra day, the 29th of February, inarched with the *Golden Hamburgh*, which it is driving up the rafter in a most beautiful manner, as strong and luxuriant as any one can desire it to be.

But now back again to 1858, in June of which strong symptoms were seen. In July it was worse; and in August every leaf, also every bunch of fruit, by the ravages of that swift-legged fungus called mildew, was totally destroyed. Every Vine had been thoroughly sulphured, quantities had also been burned there, hours of time wasted in attending to them, and all to no purpose: therefore the only way to get the canes into a thoroughly healthy state again was to cut them back close to the ground. "Did I not think the same?" was the question to me. My answer to which was "Certainly not." It was what he, the proprietor, had been advised to do the year before; and he further added, that, unless he could see them more promising than they were then, he could see not the least chance of their ever getting into a healthy state again but through the mode above described.

The first thing that I wanted then to ascertain was how the border was prepared. "Oh, everything there is all right, for that every inch of it was done according to the directions and under the eye of Mr. Spencer, of Bowood Gardens." "How far did this border extend, and what depths were the Vines planted?" was my next question; but this could not be answered. Well, I had it in my mind that the mischief was at the root, and that that was the root of the mischief, which is clearly proved since to the satisfaction of both the proprietor and myself.

Here was a chance open that I had been wishing for for some time. The temptation was too great to resist: therefore I at once accepted the service, and also promised for the safety of the fruit for last, which was the following, year, 1859, provided I was allowed to treat them at the root as I thought was best, which I could not do without throwing that part of the garden into confusion for some time, which was consented to at once;

only that I was to bear the responsibility on my own shoulders, which I said would fast enough rest there if my mode of proceeding turned out a failure. The worst thing to contend with I knew would be the unripened state of the wood, which was the same from one end of the house to the other. Well, here we are in the following June running over the bunches for the first time with the scissors. But after all my trouble in placing my sentinels, the enemy again broke in, but with much less force: it was severely checked but not eradicated. But still I lost not a bunch of fruit that the Vines threw out, or a leaf, until I plucked them for the fruit to be laid on at the dessert. Some of the leaves, although rather brown, stayed on till November, and some of the fruit from No. 6 Vine until the 14th of February of this present year, when the last two bunches cut then weighed three pounds and a half.—A. J. Ashman.

(*To be continued.*)

CULTURE OF CYCLAMEN AFRICANUM—TRITOMA UVARIA IN A POT.

I have just received a fine bulb of the *Cyclamen Africanum*. What treatment shall I give it? Will *Tritoma uvaria* bloom this season in a centre bed now in a large 32-pot? and what treatment shall I give Tritoma just out of bloom in a small 32-pot?—Harold.

[Pot the African Cyclamen, and plunge the pot in the border outside, and it will bloom in the autumn. *Tritoma uvaria* will bloom next autumn in the centre of a bed if the roots are strong enough now; but in a 32-pot it will do no good. In a No. 16-pot it might do; but in a No. 12 it ought to bloom very fine if the roots are now in full possesion of a 32-pot. When it is out of bloom in the bed let it have its own way till next year, when it will bloom twice as strong, and with many more flower-spikes. That in the pot treat just like a Japan Lily.]

IN-DOOR FRUITS.

The early-forcer, as well as the out-door fruitist, has found very awkward effects from the terrible run of weather; nay, much more so. There has been here (Oulton Park), at least a fearful deficiency of sunshine; another great evil has arisen—a necessity for much fire heat, a thing to be studiously avoided if solar heat can be had. We have heard laments of Vines falling off by wholesale. Vineries which were formerly noted coming into a bad state suddenly, and this is attributed to the unusually bad weather of the past winter, &c. For my own part, I think the conclusion erroneous, and am of the same opinion as my friend Mr. Jennings, of Knowsley, that the Vines have been frost-bitten. I have known several in my younger days thus killed in the neighbourhood of London; and once I knew of a whole house being destroyed. In those days, gardening was, indeed, mere quackery, there was not one ordinary gardener in a score that could offer you a reason for the smallest anomaly that occurred in the course of his business. It was the fashion then, or rule if you will, to turn Vines out soon after the fruit was cut; and this was accounted so orthodox, that no man unless endowed with a lion's spirit, dared say a word against it. And what work it was getting strong and old Vines out! it was fearful to hear them crack. I have known seven or eight men employed in various parts of the stove, bending and pressing to get a stem a dozen feet long, and four or more inches in diameter, through the space of a four-feet-by-three-feet front sash. This was done to "harden them;" but what could possibly have been their ideas as to the true process by which wood is hardened? Cold, indeed, will harden water into ice, but I believe our venerable ancestors, or contemporaries of our fathers, meant ripening of the wood. These Vines would very generally be in that stage, which takes place after the fruit is all cut. Thus delivered of their exhausting load, they begin to sprout into a new growth. I have thus seen them suspended on stakes, or lying on the ground; and I suppose that forced Vines under such circumstances, never after made any advance worth notice as to ripening the wood. Whatever a few hours sunshine might do would be speedily counteracted by cool nights and winds to which they had scarcely been used.

Vines in this state are easily frozen, a moderate amount of frost will suffice. Indeed, what happened to our vegetables in last October, under less than 12° of frost, will explain all this. Only think of hardy Kales, which usually, in January, after an ordinary winter, will endure, unscathed, more than a score degrees of frost, quailing before 8° or 9°.

Peach-houses in those days must be unroofed: these, however, never suffered from frost, but from ill-ripened wood. In severe and untoward springs, as before observed, there is much fire used, not for present needs alone, but to prepare for the worst. There is, as every forcer knows, no comparison between the heat produced in genial weather by shutting up nearly as much solar heat as will sustain things through the night, and heat produced by strong fires. The former is a producer of air-moisture when rightly managed; the latter a moisture-consumer; for in some cases, piping, although provided with troughs, will, I believe, consume both its own moisture and draw on vegetation likewise. So that the old blue-aprons of former days did not so badly explain this process by saying, "put them to bed warm and wash their faces." Now, this syringing, which is here meant, is a process that should not be performed at random, where great solar heats are enclosed. Supposing a Peach-house in April was closed before four o'clock on a fine sunny afternoon, the house would probably rise to 90° in half an hour. Now, at such a temperature I do not like to syringe, neither do I think it necessary; I would rather the solar heat thoroughly warmed not only the wood and fruit, but the very walls and floors. To apply water immediately is to dissipate the heat. I let mine cool down to about 75°, and then a syringing; but, above all, moisten the walls, floors, &c.

Vines after they begin to show blossom need little or no syringing; it is my firm persuasion that it is best dispensed with, provided air-moisture can be provided in a moderate and continuous way by other means. Vines abhor much damp, especially with too low a temperature.

I would here beg to refer to what is termed stopping Vines. I am of opinion that much of the present practice requires modification. We know how the custom has been to stop very near the fruit; so far, well, for under ordinary house arrangements as regards distances, &c., if they were allowed to proceed farther in the first growth, the house would be smothered, and all confusion. But then about the axillary shoots which burst directly. By some these are snubbed immediately, little quarter given, and against this I express my doubts. The idea for pursuing this practice seems to be that it increases the size of the bunch; but this I think is somewhat fallacious. I have several times tried both ways on equal subjects, and I have always considered the balance in favour of what I may call free and unchecked growth. It must not be supposed that these axillary shoots have the powerful influence of fast-growing leaders, their very appearance tells a different tale.

What I have urged hitherto bears reference to the first period of the annual life of the Vine, which, in my estimation, runs up to the blossoming period. A free and hearty development of both the first-formed leaves and the bunch is the chief object, and a free and hearty growth is the condition to promote it. But by the time that the blossoming is over, and the young berries are swelling, it is necessary to pursue a somewhat different course.

And, now, concentration rather than dispersion must be assisted—that is to say, plenty of accretive matter decoyed as far as possible in the immediate vicinity of the fruit. To accomplish this, it is necessary to stop somewhat frequently, in order to increase the size of the secondary foliage, from which more accretive matter may be produced. With all the stopping, later growths will continue to be produced, and it is well it is so, they keep the root in play in a reciprocal manner, and draw sap upwards to the other portions of the tree.

Such are my opinions as to the principles of "stopping," and I may here urge that old and hard-worn Vines should be allowed to ramble more still; indeed, some such Vines might be destroyed in a moderate period by a constant snubbing.

We all know that there has been much controversy about covering early Vine-borders with fermenting material, but I strongly suspect that after all little is gained by it. I once thought it absolutely essential; but from what I have seen in later years, my faith in the principle is shaken.

When we come to consider how difficult it is to send heat downwards from fermenting materials, we may find that an awkward discrepancy exists in the vicinity of the roots; for on examination we find the warmth so rapidly decreasing downwards, that at nine inches, or a little over, it is scarcely perceptible. But added to this, there is always a difficulty in removing this material; for, if sustained in high fermentation, we may wait till July before we get an equivalent from the atmosphere; and, if suffered to become cold and inert, it shuts out the advancing warmth of

spring. If borders are what they ought to be, it is my firm belief that for forcing Vines it is the best plan (the roots being outside), to cover the border thickly with a dry thatching at the end of August whilst warm, and so to cover it that the surface may be a smart incline, and be finished in thatching manner.

Now for a few words about Peach and Nectarine forcing. We hear annually complaints about the fruit falling off, and folks are much puzzled to account for it. I have had many inquiries from amateurs loud in their complaints of such mishaps, but this has been chiefly confined to their orchard-houses. Many of these persons, not understanding as gardeners do the character and value of root-action, are not qualified to cultivate fruits in pots. With gardeners of the old school it was even asserted that a few degrees in excess of heat would cast them at certain stages; but I have never found them so highly susceptible. Mine always hold fast, and I never concern myself about their falling off. It is probable that the evil must be sought at the root—the first thing to consider, but generally made the last. There is not anything more easily grown than Peaches and Nectarines if a man really understands their exact nature and habits; but this, I fear, is only attainable by long experience combined with sound discrimination. I recommend those who have anything to learn in their culture, to pursue the summer pinching system in preference to disbudding. This I speak with regard to ordinary trees. When, however, trees make too little wood through age or hard-bearing, reverse the practice. R. ERRINGTON.

THE SPERGULAS AS SUBSTITUTES FOR GRASS.

I SEND you a small plant and shall be obliged if you will tell me whether you think it worth growing as a Spergula. It grows abundantly in this garden, but I have never noticed it before, and do not know the flower.—J. J., *Ashwicken.*

[Your plant is *Spergula subulata*, not *pilifera*, and not more than one in ten times has *pilifera* been sent to us true. So that nine dealers out of ten must, necessarily, deal out the wrong name; but, as luck would have it, we consider the mistake, or, what some might call it, the fraud, is a fortunate circumstance, for we ourselves prefer *subulata* on most common lands to *pilifera*, not that there is the smallest difference in the general looks and in the feel under foot of the two kinds, but in July when the plants are in bloom, *pilifera* is "one white sheet of bloom," while *subulata* is a very spare bloomer. We plant every piece which is sent to us, and a stranger to the mystery might pick out seven kinds just now in our bed, but the difference is in the different localities from which the plants came. The very finest sample we have is from Hammersmith, from "G. D.," who says it came "spontaneously" to the extent of some rods, and "is the most lovely green he ever saw, and looks the same all the year round, and walking on it in frosty weather does not mark it so much as it does the grass."

We are about to have a report of twelve months' progress of the *pilifera* variety of Spergula from Forest Hill, and from the nursery of Mr. Summers, and we shall strongly recommend Mr. Summers to give up *pilifera* in favour of *subulata*, on all but very clayey land, unless we hear of something more very decidedly in favour of *pilifera*. When *pilifera* is grown on very rich land it loses its distinctive mark of the awn at the end of the leaf; in that state all the botany on earth could not distinguish it from *subulata*, unless they were in bloom together, or grown under glass. Now that they are both in full growth it is mere waste of time to send specimens to us, as the two will give their distinctions under a bell-glass in a few days. *Subulata* runs on the surface fast enough; *pilifera* grows upwards *only*.]

FLOWERS FOR TOWN GARDENS.

A CONSTANT subscriber to THE COTTAGE GARDENER would be very much obliged to the Editors if they would inform her what flowers flourish best in a town garden; and whether Verbenas and Hollyhocks will succeed.—A. S. P.

[Verbenas do not do well in town gardens. Hollyhocks do tolerably well, if the ground is rich and well trenched. Every kind of Scarlet Geranium does well in towns, also China Asters and the best Larkspurs. But it is not the confinement, or the smoke, or soot, which hurts town gardens so much as the wretched scratchings called digging and the roots of trees. Dig twenty inches deep every time, and you will never want for flowers in nine-tenths of all the gardens in all the towns in the three kingdoms. If the soil is poor, and is liable to increased poverty by the voracious roots of old trees and young Lilac and Lilac-like bushes, give it an annual dressing of decayed dung in October and November. Let twenty inches deep be the shallowest digging, and let that be done at mucking-time again soon after Christmas, and again in March, tumbling up every particle of the soil to that depth each time, and beating the lumps to powder or to pancakes for the next frost to penetrate. Choose a dry surface the last time before sowing or planting, and rough-rake the top with a wide-toothed rake, such as would leave lumps as large as Broad Beans, and bury the raked-off lumps in the back of the border; never take anything away, except large stones, and the roots of perennial weeds. Mr. Beaton's garden is in the very centre of smoke, flame, and steam-hissing, yet no plant under the same latitude but does better in it than in most gardens in the country. But forty inches are his regular depth for digging it, and he never uses any fertiliser but strong liquid manure, and that only from the 1st of June to the last of August. But any square in London would do as well as his plot under the same treatment.]

HORTICULTURAL SOCIETY OF LONDON.

REPORT FROM THE COUNCIL TO THE ANNIVERSARY MEETING, MAY 1, 1860.

WHEN the Society last assembled on an occasion of the present kind, it was the unpleasant duty of the Council to announce that their attempts at improving the financial position of the Society had been attended by no success. They had to report an income, which, though reviving, was still so inadequate that the liabilities had increased within the year by above £600, and that the necessity of selling the house in Regent Street, and all that it contained, in order to reduce the debt bearing interest, which in the beginning of 1859 amounted to nearly £8000, exclusive of above £2700 of simple contract debts, had become urgent. Such being the result of the most strenuous efforts on the part of the Council to revive the Society, it became evident that retrenchment in every direction had become so inevitable, that it was proposed to bring the expenditure down if possible to £1800 a-year, of which Chiswick was to receive £1300; and if this has not been wholly effected, it has been because the sudden alteration in the prospects of the Society rendered it indispensable to engage in expenses which would have been needless had circumstances remained as they were.

Great retrenchment in a public body was, moreover, too dangerous a course to be permanently adopted. It could only be effected by inaction. The income at the disposal of the Council was placed in their hands for the purpose of actively promoting the interests of the Fellows, and was not likely to be maintained unless that purpose, which was incompatible with excessive economy, was fulfilled.

The Council, therefore, while reducing expenditure in every direction as a temporary expedient, anxiously occupied themselves with the task of discovering in what way the income of the Society might be so increased as to enable them again to venture upon measures more conducive to its general interests. A Garden accessible without trouble or expense, in which the progress of Horticulture should be shown, not merely by what it might itself contain, but by the results of the advancing skill of others exhibited within it, was clearly indispensable. The time had passed when monthly meetings in a small room in a London street would satisfy the expectations of the public. It was necessary to exhibit gardening on a great scale, and on its own ground. The Garden at Chiswick was no longer able to supply that want. Inaccessibility, according to modern notions, and original faults of construction, had rendered it useless for exhibition purposes, and a large annual pecuniary loss. Nevertheless the principal income of the Society from the year 1832 had been derived from Chiswick, either directly or indirectly, and the Council felt persuaded that if some other garden, more favourably placed, and constructed with all the advantages of modern skill, could be obtained, the utility and prosperity of the Society would rise higher than ever.

While endeavouring to find a site near London fit for this purpose, the Council learned that Her Majesty's Commissioners for the Exhibition of 1851 were contemplating the appropriation of the central part of their land at South Kensington as a Garden,

to be surrounded by Italian arcades. On this becoming known, application was immediately made for the part so enclosed to be used by the Society as a Town Garden for shows and promenades. His Royal Highness the Prince Consort supported the application as President of the Society; and at a Meeting held at Buckingham Palace on the 27th June, the Prince announced to the Council that Her Majesty's Commissioners were ready to grant a lease of 20 acres at Kensington Gore upon certain conditions, the more important of which were the following:—

The Commissioners to expend £50,000 upon a highly decorated Italian Arcade, and certain costly earthworks required as the foundation of a Garden.

The Commissioners to claim no rent until the expenses of the Society—which include interest upon money borrowed—shall have been defrayed; all income beyond such expenses to be apportioned in the manner following—that is to say, interest to be paid by the Society on the £50,000 borrowed by the Commissioners, and then, as rent, one moiety of any surplus that may have arisen during each year.

The Commissioners to grant the Society a lease of the land for thirty-one years.

The amount of annual expenditure, and the mode of general management to be determined by a joint Committee consisting of Six Members, of whom Three shall be named by the Commissioners.

The Society to lay out a sum equal to that of the Commissioners in the formation of the Garden, one feature of which would be a Conservatory or Winter Garden of considerable extent; and also to provide reasonable facilities for the admission of the public at a low price.

The Council could not but feel that such an offer was deserving the favourable consideration of the Society, and they were of opinion that the income to be expected from the place of such magnificence, in the finest situation near London, would justify the acceptance of the terms, if not in their integrity at least in some modified form.

They also learned with the highest satisfaction that the Queen had been graciously pleased to signify Her Majesty's intention to contribute to the fund that would have to be raised for carrying out the works. The Prince Consort having, moreover, authorised the Council to state that His Royal Highness took the warmest interest in the arrangement, a general meeting of the Society was held on the 7th July in the Rooms of the Society of Arts, when certain tentative sketches for the Garden, and the propositions of Her Majesty's Commissioners were submitted to the Fellows for approval.

A large number of Fellows assembled on this occasion, the Earl of Ducie, V.P., taking the chair, when the correspondence with the Royal Commissioners was read, the general scheme of the Garden described, and the manner in which the Council contemplated the possibility of raising the sum of £50,000 pointed out. In the course of their report to the meeting the Council showed how great were the advantages of the site proposed. The Garden would be in the immediate neighbourhood of Hyde Park and Kensington Gardens, and in the very centre of a new and rapidly rising town of first-class houses, which bids fair to become one of the most popular and fashionable districts in London. The shape and situation of the ground, which slopes gradually from the north to the south, admitted of the formation of successive terraces on different levels, affording peculiar facilities for effective and ornamental treatment, and was well adapted for the display of sculpture; while a fine Conservatory at the upper end, and a Colonnade extending round it, would afford a promenade of three-quarters of a mile in length, sheltered from heat and cold, wind and wet. The Colonnade would also offer peculiar facilities for the display of Flowers and Fruit on occasions of bad weather, a misfortune which so frequently marred the Chiswick Fêtes.

As to the mode of raising £50,000 the Council believed that it might be effected by the issue of a certain number of Life Memberships; but as the success of the undertaking would in some measure depend upon the vigour with which it was prosecuted, and it was of importance that the works should not be delayed if once determined on, it would be requisite to obtain the money immediately required for the progress of the works by the issue of debentures, bearing interest at five per cent., to be redeemed as the receipts from Life Memberships became available. Donations in aid of the undertaking would at the same time be thankfully accepted by the Council, and they would be prepared to extend to the donors of sums exceeding Twenty Guineas privileges similiar to those possessed by Members.

After a long and animated discussion, it was finally resolved—

"That the Meeting generally approved of the plan of Gardens at Kensington Gore, and requested the Council to continue their negotiations with the Royal Commissioners, reporting as early as possible to the Fellows of the Society the final proposal of the Commissioners."

This resolution having been passed, a letter was placed in the hands of the noble Chairman from Colonel the Honourable Sir C. B. Phipps, Her Majesty's private Treasurer, containing the following important communication:—

"Buckingham Palace, *July* 7, 1859.

"My Lord,—I have received the commands of Her Majesty the Queen, and of His Royal Highness the Prince Consort, to inform you that in the event of the plan being carried out for the establishment of the Garden of the Horticultural Society of London upon the estate at South Kensington, belonging to the Royal Commissioners of the Exhibition of 1851, it is the intention of Her Majesty and of His Royal Highness to make donations towards the execution of this undertaking of one thousand pounds (£1000), and five hundred pounds (£500) respectively. It is also the intention of Her Majesty, should it be in accordance with the rules of the Society, that parents or guardians should purchase Life Memberships for children or persons not yet of age, to place the name of His Royal Highness the Prince of Wales and the younger Princes and Princesses upon the list of Life Members. I have further the pleasure of informing your Lordship that I am authorised by Her Royal Highness the Princess Frederick William of Prussia, Princess Royal of England, to announce the intention of Her Royal Highness to become likewise a Life Member.—I have the honour to be, my Lord, your Lordship's most obedient humble servant,

"The Earl of Ducie, &c., &c. "C. B. PHIPPS."

Immediately afterwards, Mr. Dilke announced that His Royal Highness had further commanded him to say, that should the Meeting decide on raising money by debentures, the Prince would take debentures to the amount of £1000.

It is almost needless to add, that this most interesting intelligence was received by the Society with feelings of the deepest gratitude.

The Council having renewed their correspondence with the Royal Commissioners for the purpose of obtaining a reconsideration of the points which, in the opinion of the Meeting, demanded some alteration, a second general Meeting assembled on the 20th July. The Council then explained what progress had been made in the negotiations. The Commissioners had agreed to add to the arrangements with the Society stipulations to the following effect:—Upon the Society giving two years' notice previous to the expiration of the lease the lease to be renewed for a further period of thirty-one years upon the same condition as to rent, &c., as already proposed. The Commissioners, however, to reserve to themselves a power to decline to renew the lease, in which case they would take upon themselves the responsibility of any debentures that might be outstanding at the expiration of thirty-one years, to any extent not exceeding a *maximum* of £20,000. But the Commissioners required the Society to devote in each year not less than fifty per cent. of their surplus balance to paying off outstanding debentures. And in the event of the Society being unable for any five consecutive years to pay interest on the £50,000 to be borrowed by the Commissioners, then the Commissioners to have the right of re-entry without any payment of compensation.

On this occasion the two following resolutions closed the debate:—

"That this Meeting approves of the steps already taken by the Council, authorises the negotiations with the Royal Commissioners to be continued, and empowers the Council to proceed to raise the sum required for the construction of a Garden at Kensington Gore, and if the money shall be obtained to complete the arrangements."

"That the Council be instructed not to accept the clause about re-entry in case of failing to pay interest for five years, and that in the event of the Commissioners cancelling the lease, an equitable adjustment of mutual interests be made."

Armed with this authority, the Council have unremittingly pressed forward their negotiations with the Commissioners, and although the terms of agreement are not finally settled, yet the Council can now state that they have arrived very nearly at a conclusion, which, in their opinion, will be found to secure a satisfactory as well as "equitable adjustment of mutual interests."

The support which the Council have received in their attempt to raise the £50,000 required has been of the most gratifying nature, and shows with what interest the public looks upon the attempt to bring Horticulture to the very gates of the metropolis.

The Donations announced amount to the sum of £1974.

Six hundred and one new Fellows have joined the Society since the beginning of the year.

The sum of £39,900 has been offered the Council on the security of the Society's debentures; and, in addition, application has been made for £8000 more, since the debenture list was closed. The names of the new applicants are placed in a reserved

list, in order that they may have the opportunity of being provided for should any of the first subscribers be willing to reduce the amount of their subscriptions.

From this it appears that the sum of about £62,000 has been placed at the command of the Council for the execution of the works in the new Garden. But the Council trust that no outlay beyond the stipulated £50,000 will be needed.

As soon as it had been ascertained that the funds required would be provided, measures were taken for settling the plan of the Garden. Mr. Nesfield, whose knowledge of the principles and practice of geometrical garden designs, ranks amongst the highest in Europe, was intrusted with this operation. Many Meetings of a Sub-Committee of the Council, and of the Council itself with Mr. Nesfield, to determine on general principles, were held by command of the Prince Consort, at which His Royal Highness presided, and the Council can now refer to the detailed design itself, which is before the Meeting. While this has been proceeding the arcades have been very fully considered by the Chief Officers of the Department of Science and Art, where we are now assembled, by the special permission of the Lord President of the Council, and specimens of what it is intended to construct are at hand, where any Fellows of the Society can inspect them.

The Garden itself is at present in the earliest stage of construction. The heavy preliminary earthworks and the arterial drainage are nearly completed. Mr. Eyles who has been appointed the Garden Superintendent, is prepared to push forward the Society's part of the execution with the utmost possible speed, and measures have been already taken to admit Fellows and their friends to inspect the progress of the works.

The object of first necessity in connection with the Garden was an office and general entrance to the ground, where the business of the Society could be carried on, and the meetings, whether monthly, or those for exhibitions of the Floral and Fruit Committees, could be held in a manner worthy of the Society. A single room in a small house near Trafalgar Square was obviously altogether unsuited to any purpose of the Society in its new position. Plans of such a building to form the principal entrance to the Garden, prepared by Captain Fowke, R.E., have been accepted, and the building is now rising rapidly. From the plans and elevations suspended in an adjoining room, the Society will be able to see how beautiful an edifice this will become. And here the Council desire to give public expression to their sense of the very valuable assistance that has been rendered the Society by that most intelligent officer; with whom they must also associate Mr. Henry Cole, C.B., and Mr. Redgrave, R.A., the two principal officers of the Department of Science and Art.

The arrangements for the great Conservatory demand such long and serious consideration, that no report can as yet be made on that subject; but the Council are promised the detailed plans and specifications by the 10th May; and they hope and believe that in the absence of unforeseen obstacles, the Garden will be for the most part completed by Midsummer in next year.

The Council have always expected that works of high art, suitable to garden embellishment, would be offered to the Society as soon as it was known that a place worthy of them was ready to receive them. That expectation has already begun to be realised. A group of sculpture, commemorative of the Great Exhibition of 1851, and costing above £6000, has been most liberally placed at the disposal of the Society by the Committee entrusted with its execution, and will form a noble object at the head of the great basin on the upper level of the Garden, the Society having only to pay for such alterations as are necessary in order to make it harmonise with the surrounding objects.

An account of the money received and expended on the Kensington Gore account, up to the 31st of March, will be found in the Appendix.

From Kensington the Council turn to Chiswick and the ordinary working of the Society. It has now been finally settled that Chiswick, although no more to be the scene of brilliant exhibitions and agreeable promenades, shall be maintained for the purpose of experimental cultivation, and of rearing plants both for Kensington and for distribution among the Fellows. In consequence of the forced economy of the Council it had fallen into decay; but under Mr. Eyles' superintendence it has already so greatly revived, that the Council are now able to say that it deserves a visit from all interested in the progress of practical gardening. Large additions have been made to the collections of fruit trees, spaces vacant and unprofitable have been filled with them, new Cherry and Plum gardens, each containing upwards of one hundred varieties, have been formed; all the known sorts of Strawberry have been brought together for comparison; and the great Conservatory, now containing the largest collection of Vines in Great Britain, is preparing to be loaded with a noble crop of fruit. Kitchen-garden produce is being dealt with in the same spirit; for example, preparation is made, among other things, for proving a very large number of so-called varieties of Cucumbers, Peas, and other esculents. In carrying out this work the Society is greatly indebted to the nurserymen and seedsmen who have liberally contributed seeds and plants, and to Mr. R. Hogg, now the Secretary of the Fruit and Vegetable Committee, who has presented his entire private collection of Pear trees to the Garden.

Nor are flowers to be neglected; numerous varieties of which, annual, perennial, and shrubby, hardy and tender, have been contributed by the trade for examination by the Floral Committee.

A considerable number of plants has been provided for ballot in May, June, and July; and a much more extensive collection is coming forward, although at present too young for the purpose. But the Council feel that no provision for this purpose will be satisfactory until the Society shall once more import its own supplies; and they are only waiting to find a collector who can be depended upon before despatching him to some rich and uninvestigated country.

Some years ago the noble Duke, who so long presided over the Society, and from whom the Garden is held, most liberally reduced the rent from £300 to £200 a-year, until the Society should again be in a condition to pay the full rent. Acting in the same munificent spirit, the Dowager Countess of Granville, who has succeeded to the estate since the decease of the Duke of Devonshire, has also relinquished her claim to more than £200 a-year till March 25th, 1861. The Council feel that this important aid to the finances of the Society calls for the warmest acknowledgment.

They have also the satisfaction to report that the income from the sale of produce at the Garden was last year considerably increased, notwithstanding the almost total destruction of out-door fruits by spring frosts. In 1857-8 it amounted to £112 18*s.* 3*d.*; in 1858-9, to £190 10*s.*; and last year it rose to £292 13*s.* 8*d.*

In the course of the year the Flower and Fruit Committees have been reconstructed and placed upon a more active footing, Mr. Thomas Moore having been appointed Secretary of the former, and Mr. Robert Hogg of the latter. Their operations having been recorded in the Monthly "Proceedings" of the Society, sent free to all Fellows, require no comment. The Secretaries have laboured earnestly to do all that has been practicable under the circumstances; but until a proper place of meeting and exhibition shall have been provided at Kensington, it will be impossible to render them as efficient as they must be when suitable accommodation shall have been found.

With regard to the monthly issue of what are called "Proceedings," it is obvious that it can only be regarded as a temporary expedient to furnish the Fellows with periodical accounts of the progress of the Society. The Council contemplate giving it a new and very different form as soon as the numerous other subjects that press upon their attention will permit them to consider its future plan.

The present state of the accounts of the Society will be found in the Appendix, and the Council trust that they will be regarded as satisfactory, when it is seen that the entire debt, everything of every kind included, which on the 31st of March last year stood at £10,752, is now represented by the comparatively small sum of £4,296.

Liabilities so small as these have ceased to have any significance, and the Council entertain the confident belief that the Society is now entering upon a career of utility and prosperity such as it has never before experienced.

WHAT CONSTITUTES A COTTAGER?

WOULD you be kind enough to let me know what constitutes a cottager? and whether he may be allowed to keep a greenhouse, and still come within the limits of a cottager's class at a public exhibition?—VERBENA.

[It would prevent much uncertainty if horticultural prizes were designated by the name of the class of persons who were intended to contend for them, instead of by the kind of dwelling they inhabit. There are "Nurserymen's Prizes," and though the Nurserymen often live in cottages, no intrusion into a contest for prizes for an inferior class occurs on that account. Instead of

"Cottagers' Prizes" they ought to be called "Labourers' Prizes," for the prizes are intended for that class exclusively. Shopkeepers in a country village should exhibit for the "Amateurs' Prizes." If a labourer is so fond of gardening as to have devoted part of his savings to erecting a greenhouse, so much the more does he deserve to be encouraged by having the prizes. He has set an example to his fellows which many will follow, and which deserves to be encouraged.]

PROPAGATING BRUGMANSIA KNIGHTII AND LUTEA, AND ACACIA GRANDIS.

RAISING VINES FROM EYES.

I SHALL be much obliged to be informed the best time to propagate by cuttings these two kinds of Brugmansias. Also, if I may expect them to flower in my greenhouse.

Having had cuttings of a hardy White Grape sent me, I cut the single eyes, and planted them round the sides of the pots, and plunged them in a moderate hotbed. They have begun to grow, and I shall be obliged for information how to treat them when the roots appear through the bottom of the pot.—M. F.

[The best time to propagate the Brugmansias is in spring. Little side-pieces from two to three inches long strike freely in a little heat. But similar pieces will strike freely at any time. Both kinds will bloom freely in your greenhouse, if the wood were at all well ripened last autumn. But the plants will bloom more freely in rich soil out of doors, if turned out about the end of May. *Knightii* will produce its huge double flowers all the summer; *lutea* its yellow tubes towards autumn. Raise and house both before frost. If you keep them in the greenhouse, give them all the air possible, plenty of rich soil in the pot, and manure waterings, and syringe every evening to keep the red spider and other insects at a distance. The spider dearly likes them both, and will soon make the finest plants unsightly.

Acacia grandis is easiest struck from young side-shoots from two to three inches long,—a little firm at the base, or slipped off with a heel, close to the older wood. Insert these, after removing a few of the lower leaves, in a pot well drained and covered with sand on the top, and covered with a bell-glass, leaving a little air on at night. You will find such cuttings most readily after the plant has about finished flowering for the season.

As soon as the *Vine eyes* root, before they show through the bottom of the pot, transfer them singly to four-inch pots, in light loamy soil. Shift again as soon as the roots get to the side of the pot, and repeat the operation until you get the plants into twelve-inch or fifteen-inch pots.]

THE CANARY AND THE BRITISH FINCHES.

(*Continued from page* 73.)

VARIETIES.

HAVING described the origin of the species, it now remains to say a few words respecting the varieties under domestication.

There can be no doubt but that all the wild Canaries of the Canary Islands, thirteen in number, as also of Madeira, are descended, ages back, from one source, hence their specific identity. Yet, as these islands are separated by intervening sea, it is reasonable to suppose that the birds on each having but little communication with those of the others, and in the more distant, as, for instance, Madeira, which, I believe, is somewhere about 250 miles from the Canaries, intermixture must be very rare, if, indeed, it ever takes place. Thus these isolated breeds become in time distinct breeds or families, and, doubtlessly, very slightly.

It is generally believed by naturalists, that domestication and crossing with allied species, or geographical varieties, has been the exciting cause of the changes under domestication. It will, therefore, be easily imagined, that the crossing of these various isolated families has given the first impetus to sporting and variation. Some writers have expressed their opinion that allied species, as the Citril and Serin Finches, have also crossed with the Canary, and thus tended to swell the amount of variability of the offspring; but if these birds are really so closely allied to the Canary, as to breed offsprings capable of reproduction, has not, so far as I am able to learn, been satisfactorily proved, though I am not prepared to deny the possibility. But a much more powerful agent in variation, I should attribute to the manner of treatment which many of these little birds receive, either from deficient feeding, or, what is far more prevalent, the pampering of them with unnatural and exciting food which, in the end, produces weakness in the parents. A derangement in their reproductive systems, to which may be attributed albinism and sports in the descendants. The fancier, struck with the curiosity of the new production, or pleased with the novelty, reserves the slightest variations, and by continually selecting and breeding (by almost imperceptible degrees), in time establishes a different variety. Colour and size seem to be the first alterations. Some accident or disease producing weakness in the parent, producing an albino or higher-coloured offspring; these being carefully preserved and perpetuated, crossed and selected for many generations, produce many and varied shades and markings, which in time become recognised as the peculiarities of certain fancy breeds. A want of proper food, or negligent parents, may produce a stunted offspring; and in-and-in breeding has also a tendency to reduce the size as well as to induce degeneracy and disease.

On the other hand, a bountiful supply of nourishing food, judicious crossing, and vigorous health, have a tendency to increase the development, and to these causes may be attributed the variations in size.

Other variations, at first slight or accidental, may have attracted the notice of the fancier or breeder, which by selection and careful breeding in time are augmented till they form a characteristic of the breed, or add a property to the variety.

From these causes I believe arises the diversity of the breeds and fancy varieties of most of our domesticated animals, and without their aids it would be difficult to account for the great number of varieties which the Canary now presents.

In a little work on Canary birds, by M. Hervieux, translated and published in London, 1718, a list of the varieties then known, twenty-seven in number, is given. It appears they are those that were then cultivated in Paris, and seem to be nearly all varieties of colour. As the list is curious and may be interesting to the modern fancier, I will give it in full for their persual.

"The names commonly given to the Canary birds, according to their several colours, to the end that every one may know what class, or rather of what degree of beauty the birds are he has, or designs to buy; and, therefore, I shall name them in order, beginning with the most common sorts, and concluding with the most beautiful.

"Common Grey Canary birds.

"Grey Canary birds, rough-footed and the feet white, called of the Copple-crown breed.

"Grey Canary birds, with white tails, of the Copple-crown breed.

"Common Ash-colour Canary birds.

"Ash-colour Canary birds with red eyes.

"Ash-colour Canary birds with a cast of gold colour.

"Rough-footed Ash-colour Canary birds of the Copple-crown breed.

"Ash-colour Canary birds, with white tails, of the Copple-crown breed.

"Common Lemon-colour Canary birds.

"Rough-footed Lemon-colour Canary birds of the Copple-crown breed.

"Lemon-colour Canary birds with white tails, of the Copple-crown breed.

"Common Mottle Canary birds.

"Mottle Canary birds with red eyes.

"Mottle Canary birds with white tails, of the Copple-crown breed.

"Common Buff-colour Canary birds.

"Buff-colour Canary birds with red eyes.

"Buff-colour Canary birds with a cast of gold colour.

"Buff-colour Canary birds, rough-footed, of the Copple-crown breed.

"Buff-colour Canary birds with white tails, of the Copple-crown breed.

"White Canary birds with red eyes.

"Common Copple-crown Canary birds.

"Copple-crown Canary birds with red eyes.

"Canary birds with Ash-colour Copple-crowns.

"Canary birds with Ash-colour Copple-crowns and red eyes.

"Canary birds with Black Copple-crowns.

"Canary birds with Black and Lemon Copple-crowns and red eyes.

"Canary birds with regular Black and Lemon-colour Copple-crowns.

"These are the common names given to Canary birds, they being generally called and distinguished by their colours."

From this list, it appears that the common Grey colour was least prized; next, Ash-coloured, then Lemon, so on Mottled, Buff, and White; but he makes no mention of Green or Jonque, and it seems doubtful what colours are implied by Ash-colour and Buff. As to the other points, he values them in order for having rough feet (or feather-footed), red-eyed, having a cast of gold colour, having white tails, being of the Copple-crowned breed (which seems to imply being bred from crested birds), being Copple-crowned; and, highest of all, for having "regular Black and Lemon Copple-crowns" (turned crowns or crests).

The rough-footed or feather-legged Canaries seem now to be very scarce, if the breed is not altogether lost, as I do not remember having seen but one, and that many years back.

Peter Boswell in his little work on Bees, Pigeons, Rabbits, and Canary Birds, London, 1852, in describing the varieties seems to have taken the above list as his guide, but making some alterations and swelling it to twenty-nine sub-varieties, which, however, he says, could be easily extended.

The principal difference consists in the names given to the colours. For instance: What the translator of M. Hervieux, 1718, calls Ash-colour, P. Boswell names Flaxen; Lemon is changed to Yellow; Mottle into Agate-coloured, and Buff is designated Yellow dun colour; thus rendering the obscurity of the first translator doubly confused, and I could not determine the colour intended, unless I had access to the original French work.

Dr. J. M. Bechstein in his "Natural History of the Birds of Germany, 1807," in which he has given much information respecting the Canary, enumerates four principal colours, Grey, White, Yellow, and Red-brown. The English fanciers, however, recognise five distinct colours, which are named Grey, Mealy, Jonque, Cinnamon, and Green.

Grey is the original colour and least esteemed, the upper parts being of a brownish-grey, the under of a yellowish-grey slightly tinged with green.

Mealy is a mixture of white and pale yellow. This has sometimes been called Buff.

Jonque, or Jonquil, is a rich yellow, and the deeper and brighter it is the more it is valued.

Cinnamon, or Dove, is a soft, light, reddish-grey brown; a rather difficult colour to describe, but varying somewhat in shade.

Green, called also Green Jonque, Parrot, or Grass Green, is as its names imply, a beautiful bright green.

Pieds and mixtures of these colours are innumerable, but unless they are regularly marked are quite disregarded by fanciers.

Of the various fancy breeds, I shall speak separately.—B. P. BRENT.

(*To be continued.*)

VARIEGATED IVY-LEAVED GERANIUM.

Do you consider a variegated (in the way of *Brilliant*) leaved Ivy-leaf Geranium likely to prove an acquisition?—S. P.

[Yes, a great acquisition, if the habit is as good in its way as that of *Brilliant*, and the colour the same in its race. There is a variegated Ivy-leaf already the oldest of the race, but it is of very little use. You sent the letter to the wrong post, and this must not be repeated if you require an answer.]

GROWING VINES ON THE ROD SYSTEM.

I HAVE the care of a small vinery, and want your opinion how to work it. It is a span-roof twenty-eight feet long, and has twenty-two Vines in it, eleven on each side, and the distance from the border inside to the top of the roof is only seven feet. I have been working them on the rod system; and as I never wrought any before the same way, I want to know if I am doing right. I bring up a single rod for fruiting next year. I have been told that I should bring up two; the one to run completely over the house, the other to stop short. I should be obliged to you if you tell me the best way to work it.—T. L.

[In your case, as the length of the rod can only be seven feet or something less, we would prefer growing only one rod for fruiting next year. On the rod throwing out its side-shoots and fruiting this year, we would stop each side-shoot a joint above the fruit; and we would not let many laterals grow on these shoots. But on the new rod we would let each lateral proceed a couple of joints before stopping at first, and stop to one about August or so, and remove all of them before the end of autumn. The reasons for this have frequently been given. We would clear away the whole of the fruiting-shoot of this year as soon as the fruit was gathered, and cut clean off every side-shoot as we gathered the bunch. This would give more strength, light, and air for the young shoot that was to fruit next year. It will be necessary to secure a young shoot close to the bottom every season. So much for fruiting on rods on the side of the house on which the Vines are planted. Were we, however, to grow such Vines on the rod system in such a house, we would prefer a different plan, though it may be a prejudice of ours. Prejudice or no prejudice, however, we have an idea that length of rod or stem is an advantage; and therefore in such a house we would gradually work the Vines, so that they should have a clear stem, to the ridge on the side on which the roots are planted, and have the bearing-shoot down the glass on the other side opposite. This would give a length of Vine-stem of fourteen feet instead of seven, and the appearance of the house would be much the same as now. Of course seven feet of that would be a bare rod; and instead of taking the rod of this year, which will be the fruiting one of the next, from the base near the roots, it would be taken from the ridge on both sides. Even if the Vines were spur-pruned we would prefer such a plan in such a house. You may train the bearing-shoot of the one side over the bare stem of its opposite, and, without examining, visitors would see nothing out of the usual way. We incline to think that the bearing-shoots being thus trained down instead of upwards, that the wood would be more short-jointed and prolific. We certainly have had good crops of fruit in pits narrower than your seven feet; but were we planting narrow pits for Vines again, so convinced are we of the superiority of length of stem, that we would plant at the ends, and train longitudinally, so as to have something like twelve feet of stem, or shoot, instead of five or six, which is all that can be had in a narrow pit, when the Vines are planted in front and trained up the glass. There is more trouble with the long rod than with spurring, but the claims are nearly equal. The last generally swells the fruit best; the first shows best as to quantity.]

NEW BOOKS.

THE FLORAL MAGAZINE.*—For a period of nearly eighty years the "Botanical Magazine" has continued uninterruptedly to be the medium for illustrating plants of botanical interest; but the present advanced state of horticulture, and the rapid development of a new taste in the cultivation of garden flowers have called forth the necessity of a similar work more exclusively devoted to those new creations, so to speak, which florists have of late years been instrumental in producing. While the "Botanical Magazine" will continue to illustrate, and be the exponent of those subjects which are more immediately botanical, the "Floral Magazine" will take up those which more properly belong to Floriculture, and are usually termed Florists' Flowers and Decorative Plants.

That such a publication was wanted there can be no doubt; and when we find that it has such men as Mr. Moore for its editor, and Mr. Fitch for its artist, there is every assurance that it will be carried out with that skill and fidelity which alone can secure confidence and success. The first number is now before us, and we must own that all our anticipations have been fully realised. The work is somewhat larger than the "Botanical Magazine," and consists of *four* plates, with corresponding letter-press. The former are most beautifully executed; the drawing pictorial, and yet strictly faithful to Nature, and the colouring natural and unexaggerated. The letter-press is descriptive and historical, affording all the information to be had respecting the subjects to which it refers, and furnishing full directions for their cultivation and management.

The subjects which have been chosen to illustrate the present number are:—1, *Camellia Countess of Derby*, a lovely striped variety, introduced by Messrs. Veitch & Son, of Chelsea. 2, *Double Fringed Chinese Primrose*, of a fine deep rose colour; raised at Hamberstone, near Leicester, by Mr. W. Draycott, but now in the hands of Mr. Turner, of Slough. 3, A group of four seedling varieties of *Cyclamen Persicum*, raised by Messrs. E. G.

* *The Floral Magazine*, comprising Figures and Descriptions of Popular Garden Flowers. By Thomas Moore, F.L.S., F.H.S., Secretary to the Floral Committee of the Horticultural Society of London. The Drawings by Walter Fitch, F.L.S. London: Lovell Reeve.

Henderson & Son, of Wellington Road, which are very beautiful both in form and colour. And 4, The fine new *Silver Variegated Fern*, called *Pteris argyrea*, introduced by Messrs. Veitch and Son.

Great credit is due to Mr. Moore for the taste displayed in the selection of his subjects; and editor, artist, and publisher may each congratulate the other on the able and tasteful manner in which the work has been got up. It only remains for us to commend the "Floral Magazine" to the notice of all who are interested in the cultivation of plants, believing that it only requires to be seen to be appreciated.

Handbook of the Mechanical Arts.*—This is one of the most useful books we ever had placed before us; and we recommend it unreservedly to every one of our readers who is about to build, if fixed in his native land, or who may have to build if he emigrates. It is a thoroughly practical work, explaining everything that has to be done in carpentry, joinery, bricklayering, roofing, fencing, well-sinking, draining, &c., and not only explaining but showing how all these works have to be done—every joint, every moulding, staircases, chairs, tables, windows, doors, gates, &c., are described and shown how to be made. Not only are they described, but each, and every part of each, is illustrated by excellent woodcuts, of which there are hundreds. So profuse are these that it is difficult to find a desirable quotation that does not include one or more. However here is one on the construction of

"Solid Ground-floors.—A foundation or substratum should be prepared about six inches thick, with coarse gravel, or brickbats, and lime-core, well beaten to a level surface. In damp situations, tar may be added to the concrete on which the ash-floor is to be laid, thus prepared: Take good washed sand, free from all earth and stones, together with the ashes of lime fresh from the kiln, in the proportion of two-thirds of sand and one-third of lime-ashes (where obtainable, the substratum of the third portion of smith's ashes, or pounded coke for one-half of the sand, increases the durability and hardiness of the floor); mix the sand and lime-ashes well together, and let them remain in a body for a fortnight, in order that the lime may be thoroughly slaked; then temper the mortar, and form the floor with it three inches thick, well floated, and so worked that it be not trodden till it has lain for three days, or according to the dampness of the weather, when it should be well rammed for several successive days, until it becomes hard—taking care to keep the surface level; then use a little water, and smooth it with a trowel; after this keep the floor free of dirt, and when perfectly dry it may be rubbed over twice with linseed oil, which gives the appearance of stone instead of sand. Where joists are used, a durable and cheap floor may be made as follows: Reeds are laid across the joists, or, if these cannot be obtained, laths may be used; these are laid close to one another, perhaps two or three deep; across these long laths are nailed to the joists, to keep the laths in their places. The plaster-of-Paris is then mixed and laid over these, spread with a large scraper, and levelled with a mason's level, till of a uniform thickness. To aid in properly levelling, a horizontal line may be marked all round the walls of the room near the floor, according to the depth required. The plaster should be laid on first at the part farthest from the door, working all round till the door is reached. Smooth boards may be laid on the surface, on which to tread, in order to rub the plaster with a plastering trowel from time to time till it hardens. If any portion of such a floor is damaged, the piece may be taken out by means of a saw, and, putting reeds at the bottom, filling anew with plaster; the sides of the part taken out should be made to incline inwards, so that when put in, the plaster may, as it were, be dovetailed to the old flooring. A solid and lasting floor, that will be impervious to wet and impenetrable to rats, is made of mortar in the following way: Break a quantity of stones, so as to pass through a ring 2 inches diameter; lay these in an even layer on the floor to a depth of 5 or 6 inches; make a gravel-and-mortar concrete, with small gravel and newly slaked lime; pour this in a thin state equally over the stones to a depth of 2 or 2½ inches. When this layer has set, spread over it another layer about 1½ inch thick, composed of one part lime to two parts sand; just before this is dry, go over the smooth surface with a whitewash brush; this outer finish will last nearly as long as the floor itself. Where hydraulic cement can be obtained, it makes a first-rate floor."

* *Handbook of the Mechanical Arts* concerned in the Construction and Arrangement of Dwelling-houses and other Buildings, with Practical Hints on Road-making, and the Enclosing of Land. By Robert Scott Burn. *Second Edition.* Blackwood & Sons, Edinburgh and London.

BUNCHES OF GRAPES PERMISSIBLE ON A VINE—FRUITING EUGENIA UGNI.

Is it quite inadmissible to leave more than one bunch of Grapes on a shoot? I perceive that in several instances a particular shoot has two splendid bunches of blossom, while the shoots next to it have but small ones. I should like, if it would not be wrong treatment, to leave the two fine bunches on, and deprive the neighbouring shoots of their poor ones.

How is the *Eugenia Ugni* propagated? and should it have much water while swelling its berries? I purpose fruiting it in a small greenhouse-vinery. It is in an eight-inch pot. Would it be a good plan to place the pot inside a larger one?

I have a young *Royal Muscadine* Grape planted last October, and sold to me as a three-year-old. Might I allow one bunch to ripen on it? I have cut it back to four eyes.—Q. Q.

[As a general rule, when two bunches are left on a shoot neither are so good as when one only is left. We have satisfied ourselves that, taking weight and quality, the one bunch will beat the two. When, however, the crop is deficient, and there are two fine shows on a shoot, we should be tempted to leave them both, and in such circumstances we have had both swell well. If the crop is thin, the small ones on the other shoots might also be left; but if your crop is at all heavy, we would certainly leave only one bunch to a shoot, even if you removed the small ones. We have frequently three or four bunches on a shoot; but, unless in the extreme case referred to, one bunch left was always most satisfactory in the end.

The *Eugenia Ugni* is propagated freely by slipping off young shoots three inches long, and placing them in sandy soil under a bell-glass in a warm place. When the fruit is swelling the outside pot will be an advantage; but if you keep it, when the fruit is ripening beware and give no more water than is absolutely necessary, or the fruit will have no flavour. Most fruits are improved by the soil being rather dry when the fruit is ripening. Gather a forced Strawberry after you have watered the pots in a dull day—say an hour after. Gather another one similar, but in a sunny day, and from a pot rather dry, but not so dry as to cause the leaves to flag, and you would think they were different kinds so far as flavour was concerned.

You may take a small bunch off the *Muscadine* Vine; if more, you will rue it.]

HOT-WATER PIPING REQUIRED FOR A VERY SMALL HOUSE.

How many feet of 2½-inch pipe will it take to heat a house 10 feet by 7? and how large a boiler?—Novice.

[The smallest conical boiler would do for such a small place. About 30 feet of piping would keep out frost; if much more heat were wanted you would need from 40 to 50 feet of 2½-inch pipe. We do not like piping of a diameter less than 3 inches in general.]

HARDY FLOWERING HERBACEOUS PLANTS.

(*Continued from page* 23.)

CALENDRINIA.

Nat. ord., Portulaceæ. *Linn.* Dodecandria Monogynia.

Generic Character.—*Calyx* two-sepaled, persistent. *Petals* three or five, equal. *Stamens* from four to many, inserted in the base of the petals; base of the filaments dilated; anthers two-celled. *Style* simple; stigma tripartite. *Capsule* elliptic, one-celled, three-valved, many seeded; placenta central.

Calendrinia arenaria (sand-inhabiting). *Plant* glaucous; *stems* numerous, prostrate, smooth, leafy; *leaves* linear; common peduncle terminal, naked; *racemes* corymbose; *pedicels* longer than bracts; *bracts* oval, membranous, middle nerve purple; *seeds* smooth. 6 in. Orange red. July. Valparaiso.

C. discolor (two-coloured). *Leaves* fleshy, obovate-obtuse, elongated into petioles rather discoloured beneath; *racemes* bending, the pedicels drooping after the fall of the petals. 1½ ft. August. California.

C. speciosa (showy). *Plant* smooth, diffuse; *leaves* spatulate, acute, elongated at base; *flowers* racemose; *pedicels* and *bracts* very short. 3 in. Purple. June. California.

C. umbellata (umbelled). *Stem* erectish, nearly naked; *leaves*

radical, linear, acute, pilose; *corymb* cymose, terminal, many-flowered; *bracts* ciliated. 6 in. Rose. July. Chili.

The plants in this tribe are very lovely, flowering freely, producing large, cup-shaped blossoms of exquisite beauty. They require a light, rich, dry, sandy soil, a little sandy peat added will be of use. *C. umbellata* is generally considered an annual, but it will live several years in such a soil, provided the seed-pods are nipped off early.

Propagated by seeds sown on a gentle hotbed in April, and transplanted in patches on the prepared border towards the end of May. They may also be propagated by cuttings. The best are the short side-shoots, which slipped off in May or June, and set in sand under a hand-light, shaded from the sun, strike root but not very freely. By seed is the best method of propagation.

(*To be continued.*) T. APPLEBY.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page* 58.)

RASPBERRIES.

SYNOPSIS OF RASPBERRIES.

I. SUMMER BEARERS.

1. *Fruit Black.*

Black	Black Cap

2. *Fruit Red.*

Barnet	Northumberland Fillbasket
Carter's Prolific	Prince of Wales
Cornwell's Victoria	Red Antwerp
Cushing	Round Antwerp
Fastolf	Vice-President French
Franconia	Walker's Dulcis
Knevett's Giant	

3. *Fruit Yellow.*

Brinckle's Orange	Sweet Yellow Antwerp
Magnum Bonum	Yellow Antwerp

II. AUTUMNAL BEARERS.

1. *Fruit Black.*

Autumn Black	Ohio Everbearing
New Rochelle	

2. *Fruit Red.*

Belle de Fontenay	October Red
Large Monthly	Rogers' Victoria

3. *Fruit Yellow.*

October Yellow

À Gros Fruits Rouges. See *Red Antwerp.*
American Black. See *Black Cap.*
D'Anvers à Fruits Ronds. See *Round Antwerp.*

AUTUMN BLACK.—This is a variety raised by Mr. Rivers from the new race of Black Raspberries which he has for some years been experimenting upon. These Black Raspberries are evidently the result of a cross between the Blackberry and the Raspberry, possessing the rambling growth of the former with the large succulent fruit of the latter. The Autumn Black produces from its summer shoots a full crop of medium-sized dark fruit of the colour of the Blackberry, and partaking much of its flavour. Ripe in October.

BARNET (*Barnet Cane; Cornwell's Prolific; Cornwell's Seedling; Large Red, Lord Exmouth's*).—The fruit is large, roundish-ovate, of a bright purplish-red colour. This is larger than the Red Antwerp, but not equal to it in flavour; it is, nevertheless, an excellent variety, and an abundant summer bearer.

Barnet Cane. See *Barnet.*

BELLE DE FONTENAY (*Belle d'Orleans*).—An autumn-bearing variety of dwarf-habit, and with large leaves, quite silvery on their under surface. The fruit is large, round, of a red colour, and good flavour. Ripe in October. The plant is a shy bearer, and throws up suckers so profusely as to be almost a weed; but if the suckers are thinned out it bears better.

Belle d'Orleans. See *Belle de Fontenay.*

BLACK.—This is a hybrid between the Blackberry and the Raspberry, and is the parent of all the black autumn-bearing varieties; although itself a summer-bearer. It has long dark-coloured canes, and small purple fruit, with much of the Blackberry flavour. This variety was obtained at Wethersfield, in Essex, upwards of forty years ago, and has since been cultivated by Mr. Rivers, who has succeeded in obtaining from it his new race of autumn-bearing black varieties.

BLACK CAP (*American Black*).—This is the Rubus occidentalis, called Black Raspberry, or Thimbleberry, by the Americans. The fruit has a fine brisk acid flavour, and is much used in America for pies and puddings. It ripens later than the other summer-bearing varieties.

BRINCKLE'S ORANGE (*Orange*).—A variety introduced from America, where it is considered the finest yellow sort in cultivation. In this country it is smaller than the Yellow Antwerp, and more acid. The plants throw up an abundance of suckers. It is a summer bearer.

Burley. See *Red Antwerp.*

CARTER'S PROLIFIC.—Fruit large and round, of a deep red colour, with a firm flesh of excellent flavour. A summer-bearing variety.

De Chili. See *Yellow Antwerp.*
Cornwell's Prolific. See *Barnet.*
Cornwell's Seedling. See *Barnet.*

CORNWELL'S VICTORIA.—The fruit of this variety is large, and of fine flavour, but its drupes adhere so closely to the core as to crumble off in gathering. A summer bearer.

CUSHING.—Fruit large, roundish, inclining to conical, of a bright crimson colour, and with a briskly-acid flavour. A summer bearer.

Cutbush's Prince of Wales. See *Prince of Wales.*
Double-Bearing Yellow. See *Yellow Antwerp.*

FASTOLF (*Filby*).—Fruit large, roundish-conical, bright purplish red, and of excellent flavour. A summer bearer.

Filby. See *Fastolf.*

FRANCONIA.—Fruit large, obtuse-conical, of a dark purplish-red colour, and good flavour, briskly acid. A summer bearer.

French. See *Vice-President French.*
Howland's Red Antwerp. See *Red Antwerp.*
Knevett's Antwerp. See *Red Antwerp.*

KNEVETT'S GIANT.—Fruit large, obtuse-conical, deep red, and of good flavour. A summer bearer.

(*To be continued.*)

FORCED VINES FROST-BITTEN.

I CAME to this place the beginning of last month, and found the earliest vinery in a poor state, the frost having destroyed the crop and foliage. I have been advised to cut the Vines down to the top of the front sashes, there being plenty of time to ripen whatever wood they make this summer; but I am anxious to have your advice. The Vines were cut down about six years ago, and the borders renewed.—A SUBSCRIBER.

[If you describe the circumstances correctly, the best practice will be to cut down the Vines. They will make strong canes, and ripen them well by the aid of a little fire heat in the autumn.]

TREATMENT OF NEGLECTED VINES.

I HAVE a vinery 40 feet long and 18 feet wide, with ten Vines in the house, which had been much neglected for a very long time until three years since. The first and second years I had very good crops, but now the bunches that should be in flower grow weakly, and are all going off with a brownness and a dryness. The leaves are very luxuriant. The Vines are very old, and are planted inside the house in a border four feet wide

surrounded with brickwork. The house is heated by a brick flue in front and both ends, and not at the back.—John Dixon.

[We think it very likely that you took too heavy a crop off your Vines for two years, and exhausted them. It is probable that the roots have sunk rather deep, and it is possible, also, that the Vines were somewhat injured by the frost. We could hardly decide upon the cause without seeing them. Of one thing we are certain. If by rich top dressing and manure waterings, you can secure fine foliage, and short-jointed, well-ripened wood before autumn, we could almost guarantee a fine crop next season. If you do not secure these conditions, we would advise clearing out the Vines in the autumn, procuring fresh soil and planting new ones. If they can be made to flourish, however, we would prefer the old Vines. There is nothing about the house or heating to prevent success.]

TO CORRESPONDENTS.

Waltonian Case (*G. Montagu*).—We believe that the lamp originally employed for this Case is quite sufficient for heating it, if properly managed; indeed, a correspondent in our paper to-day states the same as being the result of her experience. Write to Mr. West, ironmonger, Kingston-on-Thames. You may rely upon the information he will give you.

Work on Gardening (*H. L. Buchan*).—You can have the *Cottage Gardeners' Dictionary* direct from our office. It gives the information you need. We cannot send it on approval. Its price is 8*s*. 6*d*.

Gas Heating (*H. C.*).—Four bat's-wing burners consume more gas and give much more heat than twelve drilled jet holes. Vol. XXIII. was completed at the end of March. Look to the paging of the numbers. We cannot make out the name of your plant, but its stagnation probably arises from being brought into a colder temperature.

Destroying Ants (*A Subscriber*).—Scatter over their haunt at the foot of the Apricot tree guano, or gas lime soaked in the ammoniacal liquor of the gas works.

Books (*Deodar*).—Glenny's "Handbook of the Flower Garden and Greenhouse" may suit you. The "Botanical Register" has long ceased to be published.

Heating a Boiler by Gas (*An Amateur*).—You could so heat it, and in former volumes we have given more than one plan for so doing.

Dwarf Yellow Marigold (*R. B. P.*).—If you have grown them in heat and sown them too thickly, in all probability they will come single. They should be raised in heat, gradually grown on and hardened off, and then planted out in the open ground to flower in July. Try this mode, and let us know the result.

Names of Plants (*A. J. H.*).—Your two plants are *Acacia pulchella*, and *Nephobolus lingua*. (*F. R. H.*).—They are *Anemone coronaria* and *A. hortensis*. (*J. Whitfield*).—Your "Mignonette Tree" is a species of *Pomaderris*, and we believe it to be *Pomaderris discolor*, a native of Australia. The specimen was too imperfect for us to be certain.

POULTRY AND BEE-KEEPER'S CHRONICLE.

THE LONDON POULTRY SUPPLY.

Poultry will never be profitable till it is well understood, and it will not be understood till the process is explained by which London is supplied with poultry during the spring, and with that succession of perfect fowls which have so often caused the wonder of those who have found plenty in London, while the country was starving, so far as chickens were concerned.

The supply was formerly almost a Surrey monopoly, but Sussex crept in, and Kent, and parts of Berkshire and Hampshire. We are at a loss to know why; but these are the only counties that supply the best poultry to London. They have only one advantage over others—that is, their nearness to London; but this is so changed by railways, that all places are now within reach, and the train that deposits goods, picked up at the stations within fifty miles of London, will serve equally well for those that have to come a hundred and fifty.

There is another description that now plays an important part in Leadenhall Market. It is called "rough," as distinguished from Surrey or fine poultry. It is in this that the great improvement which has taken place since poultry was cared for is visible. It is plain both in size and quality.

A third supply is from Ireland. The number of chickens sent from this country is immense. Thousands of Turkeys also come in the season. There is no improvement here, and it is painful to see good things spoiled from carelessness or want of painstaking. The exertions necessary to do that which is done would insure a return of at least one-third more, if it were better directed.

Lastly: Great quantities of poultry come from France. These are principally Turkeys and fowls, and their quality is inferior. The great supplies that arrive daily at Leadenhall Market are not made up of a large number of small senders, but of a small number of large ones. Although poultry must always to a certain extent be looked upon as a luxury, yet, properly cultivated, it need not remain the unapproachable thing it is to the small or even moderate income. Whenever there is faith enough in poultry breeders the change will begin; and as there is a buyer to be found for every saleable thing in England, so there will be for every spare fowl as soon as it is known where it is. The higgler is the man who will do this in the country. He will buy it lean or fat. In the former case, he will fatten it; in the latter, he will kill; in both he will send to market. Before the time of railways, these men collected all the poultry they could, and would drive all night to London, reaching market about four in the morning. Many of them came fifty miles, and they generally joined the trade of carriers to that of higglers. Steam has spoiled the latter trade, but the former still flourishes.

These men attend all markets, and also call at all places where there is spare poultry. At this time of year it is often bought, and where circumstances make it desirable or necessary, paid for weeks before it is taken away. There are higglers in Surrey, Sussex, Kent, Hampshire, Wiltshire, Essex, Lincolnshire, Norfolk, Suffolk, and Hertfordshire. All these work for the London market. It is notorious that in many cities and towns it is impossible to get a good fowl; take Birmingham, Liverpool, Manchester, Southampton, and others. We do not mean to say the poultry is not young and eatable, but it is not such as is to be had in London. There are markets in all these towns; and if a breeder undertook to supply, and a salesmen to sell, good chickens, it would be the beginning of a new trade. Producer, seller, and buyer, would be severally learning their trades. That which is done daily on a large scale at Leadenhall, may be done once per week at any country or town market. There are men who send to the former place from eighteen to twenty or more dozens of fowls, or chickens, every week throughout the year. They collect them in certain districts where they know every breeder and every fowl. They know the different sorts that will suit different times. They know what their goods will make, and they buy accordingly.

These transactions had the small beginnings we are advocating. When any new article of food springs up, there are people ready to produce, buy, and consume it. That which is true of a novelty may surely be the same of an old but neglected branch; and we are sure fowls may be made plentiful and profitable in districts where at present they are rarities.

Those who do not know the poultry districts have no idea of the importance it there assumes. For some time past, good young Dorking fowls have made £3 per dozen, and the amateur who has his weekly dozen ready for the higgler is doing well. There are farmhouses in Sussex where the poultry sales for table purposes will amount to £150 per year. Turkey breeders will bring up from £400 to £500 worth at Christmas. Aylesbury takes many thousands per year for Ducks only.

These large senders are collectors; they go from house to house, buying one at this place, three at that, and so on. Those that are ready are at once despatched to market, those that are not are put up for more fatting. In many places the house of one of these collectors is a little fair on a given day, when the poultry is brought to him. In others, competition is rampant, and two buyers will quarrel over a basket of fat fowls, and bid one against the other till the one has reached a sum that can only entail loss upon him.

PRIZES FOR GUINEA FOWLS.

In a recent number of The Cottage Gardener I find that Mr. S. Pitman, Steward of the poultry department of the Dorchester Show, sends me a polite invitation to exhibit my Guinea Fowls at his Show. Unfortunately, my best bird has met with an accident; but had it been otherwise I should not have exhibited at Dorchester, for I do not consider the prizes for Guinea Fowls adequate to the trouble and expense of sending my birds there. The entry-money is 5*s*. 6*d*., and the first prize is only £1. Now it is evident that, residing as I do, two hundred miles at least from the Show, I should not like to risk my birds so far for so small a prize. I am sorry to find that the second prizes for fowls at Dorchester are so small; but this is, I think, an evil as well as a mistake at most of our large Shows for domestic fowls. For example: The first prize for Spanish at Dorchester is £4; the second prize is only £1. What a manifest disparity! And yet I daresay there will be very little difference between the first and

second-prize birds; and in all probability the Judges will find it no easy matter to distinguish between them.—J. B.

NORTHERN COUNTIES FAT STOCK AND POULTRY SOCIETY.

SUCH is the new title to the flourishing Society which has improvingly held its own for the last seven years, as "The South Durham and North Yorkshire Fat Stock and Poultry Society." The name has been changed to dissipate, if possible, even the shadow of a waning jealousy to which the old title unfortunately gave rise, though merely identifying the "cradle of the southern" with the birthplace of a Society for the encouragement of early maturity in food and its increased supply for the enlarged demand entailed by many-mouthed commerce, and a prosperous population in the district; the classes being at the same time open to all the kingdom. As hitherto, Darlington, for obvious reasons of convenience, will be the central point of management, and the site of the Christmas Exhibitions, which year by year become more and more a prominent feature in the north.

In the poultry schedule a vast improvement has been adopted in all classes. For old birds, the prizes are £2 and £1, except White Dorkings and Hamburghs, for which there is not much competition, and they remain £1 and 15*s.*, while the young birds of every variety have three prizes of £3, £2, and £1, and the "any other variety" has three prizes, of 30*s.*, 15*s.*, and 10*s.* The rage for Dorkings and Game has become thoroughly established throughout the kingdom. The Society, wisely taking advantage of a preference certain to lead to remunerative entries, give, in "the Single Game Cock" (of any variety) three prizes of £10, £3, and £1, adding also a sweepstakes of 7*s.* 6*d.* each, for "Game Cockerels," to be divided into three prizes, after deducting 1*s.* per pen towards expenses; and another sweepstakes of 5*s.* each for "Game Bantam Cocks, of any age or colour," on the same conditions. To enliven the exhibition, and afford purchasers an opportunity of judicious crossing, classes are opened for "Pairs of Pullets," in any variety of Dorking and Game, in each of which two prizes of 20*s.* and 10*s.* are set down; in like manner, for "Single Dorking Cocks of any variety," similar amounts will be given; and Mr. Richard Benson gives £1 for a single Cochin-China cock (Cinnamon or Buff), and another £1 for a single cock (Brown or Partridge). For Bantams generally, £1 and 10*s.* will be given in each class, excepting in "Game," for which three prizes of £1 10*s.*, 15*s.*, and 10*s.*, will be offered. In the Duck classes, £1 and 10*s.* are given; and for "Ducklings" three prizes of £3, £2, and £1. In Geese and Turkeys, £1 and 10*s.* will be given respectively; but for "Goslings," £1 and 10*s.*, with £1 added to the first prize, and 10*s.* to the second, by Arthur Pease, Esq., of Darlington. For "Turkey Poults," the Society gives £2 and £1, Mr. Pease making a similar addition to these classes; so that "Goslings" will be entitled to £2 and £1, and young Turkeys, £3, and £1 10*s.*, which will insure a fine show of these useful birds. Guinea Fowls remain as before, 10*s.* The Pigeon classes are put down at 15*s.* first prize, and 5*s.* second; but the "any variety class" has three prizes, of 15*s.*, 5*s.*, and 2*s.* 6*d.*, F. Mewburn, jun., Esq., adding 20*s.* to the best pen of Carriers, Pouters, or Almonds, and the same amount to the best pen amongst all the other classes. The Council remain the same, but the stewards are changed, owing to death and absence, and increased for further efficiency; that body now being composed of Messrs. Joseph Stevenson, C.E., Robert Emmerson, William Watkin, David Thomas, William Thomas Robinson, and Robert Thornton, jun. Mr. John Hodgson continues his gratuitous and indefatigable services as honorary secretary.

The Exhibition this year will be on the 12th, 13th, and 14th of December.

PHEASANT MALAY FOWLS.

I HAVE received so many inquiries respecting the properties, plumage, and other characteristics of Pheasant Malay fowls, from persons residing in different parts of England, and even Ireland, that I am induced to ask you to allow me to answer these inquiries through your paper.

The Pheasant Malays are fine large birds, good layers, good sitters, very handsome in plumage, and of excellent flavour when on the table. Their eggs vary in size, though they generally measure from six to seven inches in circumference, and are of rich flavour. The cock is a large-sized bird, of a dark-red colour, with a small comb and white legs. The hen is a beautiful bird, just like a cock Pheasant in all parts of the body, with a velvety-glossy dark neck, and with an appearance far superior, in my opinion, to other fowls. The legs are white, and also the skin. Those chickens hatched in June are always the best. I never wish to have any hatched before the 20th of that month. I find the Pheasant Malays are always very much admired by persons who have never seen the breed before, and they seem to be little known in many districts.—RANGER.

[The other part of your letter is an advertisement.]

DETECTING UNFERTILE EGGS.

A CORRESPONDENT states in a recent number of THE COTTAGE GARDENER that he has only nine chickens alive out of forty-seven eggs put under four hens. He and others would, perhaps, be glad to know how disappointment on the day of hatching may in a great measure be avoided, as well as eggs preserved instead of being wasted under hens. In other words, how it may be known for a certainty, at the end of the first week of sitting, which eggs have chickens forming in them, and which have not.

The knowledge is of some value, for supposing you have two or three hens sitting at the same time, the fertile eggs can be put under one hen, and fresh eggs supplied to the others, and the unfertile ones even after they have been sat upon for a week, will be perfectly good for cooking purposes, though, probably, no persons will believe the fact until they have themselves made the trial. Last year, I put thirteen duck's eggs under a hen. At the end of the first week I judged seven to be all right, and six not. The latter were removed and used, and six hen's eggs put in their place; and, in the end, I had a mixed brood of thirteen. This year I have removed at least a score of eggs without making a single mistake, and all I left had chickens. My plan is very simple.

You must hold up the egg between the forefinger and thumb to the light of the sun or a candle; when, if there is a chicken forming, you will observe a line, as in the annexed diagram, and the larger portion below the line will be dark. Whereas if it be an unfertile egg it will be light, almost as much so as when first put under the hen. If the shell be very clear and thin, you may observe the difference, even at the end of three days; but at the end of a week you will be able to pass judgment unhesitatingly after a very little practice.—G. MONTAGU.

EGGS FOR ONE SITTING.

HAVING seen it stated in your columns that seven eggs are enough for one hen, if I may be allowed to give my opinion on the subject, I should say that as many as the hen can cover is the proper quantity.

For example: I had two hens sit on the 3rd of April, one on seven, and the other on fifteen eggs. One chick was hatched from the seven, and fifteen from the other, every egg being good. I have another hen that is hatching whilst I am writing; there are sixteen good eggs out of seventeen.—A. F., *An Amateur.*

[We said that in *cold* weather seven eggs at the most, are usually the most prolific, and we repeat that statement, because it is sustained by the general experience of poultry-keepers. In warm seasons, or if the hen is sitting in a very warm place during cold weather, a larger number of eggs may prove fertile.—EDS. C. G.]

AILMENTS OF SPANISH FOWLS MOULTING.

I KEEP two kinds of fowls, Dorkings and Spanish; their roosts are in the same building but separate. One day the Spanish have a run in a small yard of rough-dug earth, and the next day they have a run in the fields,—a good grass run of twenty acres. Their roosts have asphalte floors, the perches

about twenty-four inches high, and four inches broad. They are fed upon barley and wheat mixed, for hard food; for soft food, they have oats ground, barley-flour and Indian meal for a change.

Now, the Spanish during the last week or two have looked most seedy; about their breasts their feathers are off, and they are quite "penny" as they say here—that is, their feathers are full of blood; one hen has broken her skin, and there is a hole right into her crop. I have sown it up and put her by herself, she is such a pitiful-looking object.

The Dorkings, although fed on the same food and using the same roosts, have nothing at all the matter with them.

At first, I thought their dust-bath must have had some large cinders in it, and that these cut their feathers; but after sifting it all over and giving them it perfectly small—in fact, dust, I find no improvement in them.

I have once seen a similar case, also a Black Spanish bird, he had lost all his breast-feathers and his breastbone was so greatly inflamed that his owner destroyed him out of compassion; mine, however, are not inflamed.—F. P. W., *Chesterfield.*

[There would be nothing remarkable in the state of your Spanish fowls if it were the moulting season, as they are then very bare, more so than any other breed, and the growing feather is always full of blood during its formation.

In a certain state of body—for instance, when suffering from internal fever, fowls peck each other, and especially like to eat the bleeding end of the young feather. When a place is raw, they will then eat till they make a hole, and we have no doubt that that in the hen was caused by her fellows eating her. As Spanish are layers only, they are sometimes stimulated when they are thought to be remiss or dilatory in laying, by being fed with a few pieces of raw meat, which are withheld when they begin to lay. If this has been your case, that is the cause of their cannibalism—they are finding for themselves that which you taught them to like. But if meat has not been given, have they been over-fed and tempted to eat? If they have, that may again account for the propensity, as it has induced a diseased and heated state of body. Your remedy will be to purge freely with castor oil, to feed moderately on oatmeal or ground oats, giving no whole corn, but feeding liberally with green food, as lettuce. We are strongly opposed to asphalte floors; but as it may not suit you to do away with them now, we advise you to cover them with loose gravel at least three inches deep. The perches should be circular—that is, a pole sawn in half, and placed with the round part uppermost. You speak of barley flour in their food. This is bad feeding. They do not want flour, but the whole of the grain ground up together, and *nothing taken from it.* Oats prepared in this way are the food used in Sussex; and to that may, in some measure, the success of that county in rearing and fattening fowls be attributed.]

LIGURIAN QUEENS—M. HERMANN'S "ORIGINALS."

Soon after the appearance of young bees in the spring, I became aware of the fact that those bred by two out of my four Ligurian queens were of a darker colour, and much more nearly resembling the ordinary species than were produced in the other two metamorphosed stocks. As the two queens referred to were the first I received from M. Hermann, and I had never doubted that their progeny was the true type of the Ligurian bee, I paid at first but little attention to the difference, and contented myself with admiring the bright yellow colour of the young bees which were gradually appearing in the two stocks that had been Ligurianised late in the autumn.

As time advanced and the juvenile part of the population became more numerous, the difference grew more and more apparent, until at length I am reluctantly compelled to acknowledge that the distinction between these varieties of Ligurian bees is much more decidedly marked than the difference which exists between the darker of the two and the common bee; and that, in fact, two out of the four Ligurian queens, which I have procured with so much trouble and expense from M. Hermann, are mere worthless hybrids.

It will be at once perceived that this unwelcome and most unlooked-for discovery diminishes by one-half my resources for the artificial multiplication of Ligurian queens, as I cannot lend myself to the dissemination of what I believe to be spurious, and have, therefore, only two queens to breed from instead of four.

Yesterday (1st May) I caught the first drone entering one of my pure Ligurian stocks, and found to my amazement that it was of the ordinary species! In consequence of this discovery I examined the bees and every comb in both hives, and satisfied myself that this unwelcome stranger was a straggler from some other colony. Not only was there no other drone in either stock, but in only one of them could I find a few drone eggs. During the examination I carefully inspected the queens. Both of them have one ragged wing, and one is slightly darker than the other; a similar degree of difference is, I think, traceable in the colour of their offspring. They are fine queens, especially the darker one; but I am still of opinion that I have seen common ones of equal size.

By making this examination I have satisfied myself that my attempt at queen-rearing must be deferred for some weeks, and that when it is made I should omit no precaution that may tend to insure impregnation by Italian drones.

I perceive that M. Hermann in the last Cottage Gardener, refers to one of my former communications. Whether he intends to differ from, or agree with, me, is not very apparent; but I have little difficulty in indorsing as much of his letter as I can understand. He is, undoubtedly, a thorough bee-*master*, although more than one-half the queens he has sent have proved valueless to—A Devonshire Bee-keeper.

ESTABLISHING A LIGURIAN STOCK.

I have to-day been reading, in The Cottage Gardener of the 24th inst., some extracts from M. Hermann's book on the Italian Bee, and the plans for establishing colonies of it; with the remarks made thereon by "A Devonshire Bee-keeper."

One of the plans mentioned for forming an Italian stock is to remove the Italian queen with one-third of the combs and bees from its own hive into another, then to put this hive on the stand heretofore occupied by a strong colony of the common bees (at a time when a large proportion of bees are abroad), to a considerable distance, so that the bees on returning will enter the new home provided for them, with the sovereign of foreign race.

Cannot this plan be adopted with the Italian queens about to be sent out by "A Devonshire Bee-keeper?" Could not the queen and the few bees sent along with her be placed in a perforated box, this put in an empty hive, and this hive placed during a fine day on the stand occupied by a populous community of common bees, and thus get the requisite number of bees? Of course, removing the old hive of black bees a considerable distance quite away.

If this plan should succeed, it would be much easier to accomplish than by driving common bees and then searching for the queen amongst her irascible subjects. The last operation, to those without bee-dresses and not used to it, is a rather formidable undertaking with liability to a mishap. If the above plan should succeed, how long do you think it would be necessary to confine the Ligurian queen and bees before allowing the junction with common bees?

The season here is so backward and cold, that the bees have not been able to collect pollen, &c., this season, on more than three or four days up to this date. The first day they carried was April 7th, and then not much for want of flowers. To-day (April 27th), has been the best day though cold, as the sallows are now in bloom, which are a great help to the bees, as flowers are exceedingly scarce yet.

The first blooms of the lesser celandine (*Ranunculus ficaria*), are just coming out (April 27th).—A. T.

[If "A. T." will refer to page 297, Vol. XXII., he will find that his plan was attempted with the first foreign queen I received, and proved a failure. If tried earlier in the season, it may possibly have a better chance of succeeding; but it will, I believe, be found necessary to trust the Italian sovereign at once to the mercy of the strangers without the intervention of a perforated box.—A Devonshire Bee-keeper.]

OUR LETTER BOX.

Drinking Fountains for Poultry (*Mr. R. Everett*).—Apply to Mr. Baily, 113, Mount Street, Grosvenor Square, W.

Hens' Nostrils Discharging (*A Constant Reader*).—If this arises from a catarrh, or cold, green food and genial weather will speedily effect a cure. If it arises from roup we must refer you to our reply to another correspondent last week. We cannot tell what will make a Blackbird sing. We certainly should not feed him exclusively on fig dust. More suitable food and warm weather ought to remove his silence.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	MAY 15—21, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
15	Tu	Tillæa muscosa.	29.955—29.861	64—41	N.E.	.04	10 af 4	43 af 7	50 1	24	3 54	136
16	W	Polycarpon tetraphyllum.	29.896—29.765	64—46	N.E.	.10	8 4	44 7	2 2	25	3 53	137
17	Th	Ascension. Holy Thursday.	29.761—29.718	56—46	N.	.06	7 4	46 7	16 2	26	3 51	138
18	F	Sherardia arvensis.	29.742—29.631	60—47	N.	—	5 4	47 7	31 2	27	3 49	139
19	S	Asperula odorata.	29.692—29.649	67—49	S.	.30	4 4	48 7	50 2	28	3 46	140
20	Sun	Sunday after Ascension.	29.709—29.699	60—46	N.	.19	3 4	50 7	sets	◯	3 43	141
21	M	Sun's declin. 20° 18′ N.	29.938—29.843	61—41	N.E.	—	1 4	51 7	24 a 9	1	3 39	142

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 65.6° and 43.1° respectively. The greatest heat, 86°, occurred on the 17th, in 1833; and the lowest cold, 25°, on the 15th, in 1850. During the period 139 days were fine, and on 92 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Protect the seeds from birds and slugs; old hurdles wattled with green Spruce branches, when placed upon fresh-sown seeds, will protect them from birds, and the fallen foliage of the Spruce is thorny, and unpleasant to the slugs. Throw on dustings of soot or lime in addition. *Asparagus:* The practice of allowing the young shoots to grow to some inches in length out of the ground before cutting is becoming more generally adopted, and ought to be universal; an inch or an inch and a half below the surface is quite enough. Do not permit any to run up at present, not even weak ones; and give the beds occasionally a supply of manure water, with a little salt dissolved in it. *Battatas edulis,* plant on a warm border. *Cucumbers,* sow in a gentle heat for ridging out in due time. *Dwarf Kidney Beans,* plant out on a warm sheltered border any that have been forwarded in pots. By potting a few in the manner usually adopted for forcing, and retaining them in heat for a time, and then standing the pots close under a south wall, they will come into bearing some time before those sown now, more especially if occasional applications of liquid manure are given to them. Sow the main crops, getting the ground previously in a well-pulverised state. *Mustard and Cress,* sow every four or five days. *Melons,* plant for a late supply. Permit only a proportionate quantity of leaves by stopping in good time and distributing the chief stems at equal distances. *Peas,* make full sowings of the most approved Marrows for successional supplies. *Turnips,* sow, and thin the early sowings. *Vegetable Marrows,* sow in a gentle heat.

FLOWER GARDEN.

Auriculas, if seed is wanted, place a few of the best in a southern aspect under hand-glasses, and keep them at some distance from the other kinds. When selecting them choose young plants of good habit and circular properties, and remove every pip that is inclined to be in any respect faulty. Give them plenty of air, and the benefit of gentle showers. *Carnations and Picotees,* water in the morning during the continuance of dry weather. Stick the plants. Sow seed in shallow pans, placing clean green moss over the surface: this prevents the soil becoming hardened, and expedites the germination of their seeds, to be removed when they begin to vegetate. See that the standard *Roses* are properly secured against high winds. Go over all that had been budded last season, and remove all buds and suckers that proceed from the stock. The inserted buds that have made shoots to be stopped to three joints, which will cause them to take a firmer hold of the stock, and will greatly increase the size of the head.

FRUIT GARDEN.

Water all fruit trees that have been planted this season, and give them a good mulching of rotten dung. Moderate disbudding, or rather thinning, the shoots to be persevered in, to be now removed with a sharp knife, and not broken off, as the shoots are acquiring consistency. The fruit of *Peaches* to be thinned out where necessary, and the strongest shoots, intended to remain, to be tacked in.

STOVE.

Attend to shifting specimen plants of Clerodendrons and other such gay and popular stove plants. Encourage the growth of young plants for autumn display: the Begonias will be found valuable for the purpose. Ventilate freely both by night and day, and keep up a moist, free-growing atmosphere.

GREENHOUSE AND CONSERVATORY.

Syringe the young plants occasionally, and sprinkle the vacant parts, so as to keep up a moist atmosphere. Such plants as the Boronias, Eriostemons, Leschenaultias, &c., would now do better in a frame or pit where, while they have free ventilation, they could be protected from cold draughts. *Cinerarias,* sow seed for spring decoration. *Chinese Primroses,* sow seeds.

PITS AND FRAMES.

Lose no time in finishing propagating and finally hardening off the half-hardy plants intended for the decoration of the flower garden. We would advise to postpone transferring them to the open ground until next week, as it sometimes happens that a few fine days are so tempting for the operation that they are planted out, and a short but blighting change takes place, when regrets are unavailing.

W. Keane.

ARRANGING COLOURS AND PLANTING GERANIUM-BEDS.

Harness a farm horse half an hour before his usual time and he will eat double, or make double the use of his jawbones in that half hour; he knows it must be done then, or not till the day is over; so plain sailing, one would think, is the easiest thing in the world; but it is not half so easy as putting the cart before that horse. So it is in our line. More will be done from the middle to the end of May, when the harness is on, in the way of arranging flowers and colours, sizes and shades, heights and distances, contrasts and combinations, plain sailing, and putting the cart foremost, than has been done, or could be pushed on for the last six months at a guess.

The question is now, Are there time and inclination to look over and digest the rules and laws which have been laid down, and explained, for the proper execution of the fashionable ways of exhibiting our skill in the arrangements of our flower gardens? The planting must be done, and that quickly, whether the arrangements have ever been considered or not. Just like going to a wedding, or for being presented at Court, and the effect is just the same. You may have that cart loaded with the best and finest fabrics of the four quarters of the globe, just as we possess the flowers of the same regions; but if they are not made to the cut and fit of the fashion of the day, for weddings, and for Court presentations, depend upon it the more you have of them the better you will

be abused, and loudest talked about. And there is not a pin to choose between that fit and cut, and the arrangement of your flowers on a scientific basis. The basis or foundation of any fashion in flowers which will outlive an age being just as scientific as the science of flowers can be during the same period. The opinions of scientific men, in relation to flowers, change with every age fully as much as the fashions of an age do among women of all ages, and among their dolls when they are little girls. But civilisation, high breeding, and social intercourse join hands here, to deceive the most innocent; the three will join in chorus in admiration of your skill, as exemplified before them, in that flower garden of yours, then go away and criticise it, as it ought to be criticised, and if it is an inch out of place, or a shade out of order, they will pull it to rags without mercy; the poor innocent all the while believing her friends to have been in raptures with her success. It is only from family or very intimate friends that she can ever expect to hear a right judgment on her flower garden, unless she reads such books as The Cottage Gardener, where the writers make it a point of conscience to tell the truth, whether it be for or against you. But if telling the truth, or the whole truth, had been considered the highest point of civilisation, every one who knew a turn of flower gardening would tell the truth about the thing, just as we do, and then there would be little use in writing books on the subject, for it could be easier learned among one's friends. What is here stated is not confined to the higher classes—far from it—the spirit pervades all ranks of society, and rivalry is just as hot as criticism in all ranks of society. There are Mrs. Barley in No. 2, and Mrs. Johnson in No. 3, Flora Cottages, my next and second-next door neighbours, priding themselves in having excelled their landlord in window flowers, as they certainly have done, and, no doubt, talking together across the fence about you, and all the rest of the readers of The Cottage Gardener, to the effect that if you were to see my window-boxes now, with nothing better than Wallflowers in, and hardly enough of them, you could not believe the one-half of what I write about flowers; and yet if my boxes were full of Dendrobiums in full bloom fit for a show, no one would give me credit for it. "No thanks to him, he is an old gardener, and is always talking or writing about flowers; if he expects people to be always up to the mark, he could do no less than grow Dendrobiums that way." So, you see, good or bad is just the same to me, and such as I am situated, but for the rest of the world to be held up as know-nothings about flower gardens is dreadful. Therefore, let no one attempt to plant a single bed without well considering how the colours will suit when the whole come into bloom.

It is true flowers will look well in the mass, plant them how you will; but that is not the question now-a-days, but, Are they arranged according to the fashion of the day? No bed can look richer than one planted with this *Crystal Palace* Scarlet Geranium; but a far more telling bed, to a good cultivated eye, could be planted with three or five kinds of Geraniums, with the various shades which are already compounded, as it were, in the flowers of the *Crystal Palace* kind. The colour of a good bright scarlet Geranium is compounded of crimson, pink, lake, or carmine, and purple, in different degrees; and if you can supply the pure colours, and put them together in the right proportions, the effect will be three times or five times as good as that from using the one plant only in which the colour is already compounded. Besides the blaze to satisfy the vulgar eye, you add the charm of variety; for that way of disposing colours ought to be the meaning of the expression "variety." The way of planting a Tulip-bed, or a Dahlia-bed, on the fancy of a florist, putting in the colours as the drops fall on the slates, is by him called variety; but it is nothing of the kind. It is a mixture on a green ground, the leaves, just as the dotting on a dark ground is known as Oxford mixture, only a greater distance from variety; for the more colours on the green the more is the mixture and the less the contrast between the different colours and the one ground colour.

The best way of showing a variety of colours in a bed is to plant every variety of colour by itself, and next to that with which it best agrees. As for instance, in a case which could never yet have been done—a new bed, say. Put a row of *Imperial Crimson* round the outside of the bed, or along the front of ribbon-border; next put *Kinghorn's Christine*—the two shades farthest from scarlet, the one the strongest, and the other the weakest in the compound: therefore they balance the part. The third row to be of my *Carmine Nosegay*, the very next shade after *Christine*. Here, then, there is not only the variety of the three shades of colour, but a double variety in the difference of habit of the first and third-row plants from that of those in the centre row. The three kinds planted that way in a circular bed would be perfection as far as the colours and habits go. But now add a darker shade of scarlet, or a very light purple, which is the same thing; and after that no one can add another kind to help the beauty without first introducing a white flower or a variegated plant to make a break before another start. Then, on the true principle of colouring with flowers, the colours on one side of the "break" line must correspond exactly with the colours on the first side of it in a bed intended for scarlet: therefore no break-line is needed. After the darkest scarlet is reached you are up in the centre of the bed, or ought to be; and each way you look at a circular bed so planted, you have the very same tints all round up to the darker centre. That dark centre we have been all looking after for the last twenty years, when I began flower-gardening first on a scientific basis, and I had the good luck to be the finder of it myself the year before last, and I called it my lucky star—in dog Latin *Stella*, or *Nosegay Stella*—and my agents have hundreds of it on sale. It is different from that when one is planting rows on a ribbon-border. Every two rows on a ribbon may contrast as much as one chooses. The rows in the round bed did not contrast—they combined, each its own shade, to form a whole scarlet complement, or as nearly so as our plants will allow.

But if a ribbon-border were in the same lines—that is, 1st, *Imperial Crimson;* 2nd, *Christine;* 3rd, *Carmine Nosegay;* and 4th, *Stella Nosegay;* no more purple or scarlet lines must be used without a break of white, or blue, or yellow; because any other shade of purple, or scarlet, or crimson, or lake, after once passing up to the darkest scarlet—*Stella*, would make a muddle on the eye, or a mixture instead of variety; but a white line at the back of *Stella* would allow the eye to measure to there, and comprehend the meaning or style between it and the white line, then start again, as it were, to take in a different measure or design of colouring.

Here fashion exacts another rule and line to complete this the most difficult style of ribboning. The rule is, if you break in the centre with a white line as we have just done, you must begin with a white line. That is not, however, essential with such high-coloured lines, they need no more light thrown on them. Therefore, although the front line of a ribbon ought to be white or whitish variegated, when the next row is blue or black, or dark in any shade, it is arbitrary in front of crimson, carmine, scarlet, or lake; but fashion is stronger than passion for colours, and a Cerastium-row three inches wide, or a Variegated Alyssum six inches wide, or a dwarf variegated Geranium of the silver-leaved kinds, must come in before *Imperial Crimson*, to begin a fashionable ribbon based on the science of colours.

Now, plant a row of *Royal Dwarf* Geranium, or any other kind of dwarf with Tom Thumb-like flowers, as *Fire Ball, Princess Royal, Collins's Dwarf, Cooperii*, or *Tedworth Scarlet*, for all these carry the very same weight in a front row. Let the second row be of *Hunts-*

man, Basilisk, Fire Queen, Queen of Scarlets, or *Tom Thumb.* The third row, of *Punch, Compactum, Cottage Maid, Lord Raglan,* or *Magnum Bonum;* and let the fourth row be of any variety of the original *Shrubland Scarlet,* as *Emperor, Amazon, Ibrahim Pacha,* or *Prince of Wales.* Or if you plant a row of every one of these kinds of Scarlet Geraniums in a border, just as I put them down, you would have a glorious scarlet ribbon, as some people would say, and as every dairymaid in the three kingdoms would say also; and so you would, and who can doubt it? But let us prove how it is for variety; for, passion or no passion, we must come to variety before we can expect to make much impression on educated people.

Begin the proof with the best gardener in England—and he will say, because he knows the kinds, there are ten or twelve, or more or less, shades of scarlet there, for none of the kinds are exactly alike, and of course you have so much variety; but ask any other person, from a volunteer to a premier duke, or from the dairymaids to the ladies of the bed-chamber, and ten to one but all of them would exclaim against variety altogether, and I am quite sure a full country clown would say of them "Lor' bless ye zur, they be all the zame!" which would be truth true to Nature, for the difference in their education might tell those above him that they were not just exactly the same, although they seemed to be. There is nothing strained in all this, nothing that is not common as Daisies in the country; but the moment you pass common things and common people—that is, common in their notions of flower gardening, you begin to want something else,—different indeed, very different from vulgar display of colours, without variety, without contrast, and without any kind of meaning to impress the senses, if that itself has any sense in it.

Let us plant the same piece of ground once more, and with the five nearest to each other in looks, of the same kinds of Geraniums. *Royal Dwarf* in front as before; the old *Lucidum* next; then *Tedworth* or *Princess Royal,* third; *Carmine Nosegay,* fourth; *Tom Thumb,* fifth; *Stella Nosegay,* sixth; *Punch,* seventh; *Model Nosegay,* eighth; *Cottage Maid,* ninth; and *Fothergillii Nosegay,* the oldest of all, in the tenth row—that is, five common scarlets, and five uncommon *Nosegays,* will throw every one of the ten rows on its own merits; so that Jim Brown, or Sandy MacPharlan, or Paddy O'Rearden, could see the distinctness as clearly, and more so, than the highest cultivated intellect in the land could perceive in the former arrangement of the very same colours;—and how is that? Just because the style of flowering of the *Nosegays* is as different from that of the common scarlets, as the leaves of *Flower of the Day* are from those of *Tom Thumb.* Every two lines, therefore, contrast in this second principle of planting, and by their difference tell even on the vulgar eye.

How much more, therefore, do you suppose such things delight and pleasure our highest intellects among the noble and most noble women who have made flower gardening a pleasure-study? "All fine talk and drawing-room gossip, no doubt; but how am I to know how many plants I shall have to buy for these beds? Bother the beds! and as for these writers on flowers, fang my teeth if they are not worse than tallymen, they are in league with—no, not with him, but certainly they are with the nurserymen and seedshops. I tell you what it is, I shall order Thurman to send no more of these books from the station, we did very well before we began to read them; and as there does not appear to me to be any end to garden expenses, if we go on reading as we have done, we shall have no more of this kind of fun." Business and politics take such turns at times, but it is all over by dinner time, if you do not contradict them when the steam is up. Here is a legacy to young gardeners, and to the newly-married on both sides. Steam is on every line now, but there is a safety-valve sure as the tides of the ocean, and sure also, as the *nixus,* or the tendencies of the tempers of all educated men and women to dissolve in goodness, and that valve is to hold the tongue on the down line while the steam is above "temperate" on the up line. If married folks, men and maidens, with lads and lasses, would attend properly to that valve, it would be a greater improvement in gardening than Mr. Bailey expects from the rarities and resuscitations of the present season.

But about the number of plants for a given bed, that turns on the centre of gravity; and the gravest part of the question is whether the dozen, the screw dozen, or the baker's dozen, be at 2*s.* 6*d.*, 3*s.* 6*d.*, 4*s.*, 5*s.*, 6*s.*, 9*s.*, or 12*s.*, or 18*s.* respectively. Tell me the price of your dozen, and I shall send you word how far apart you ought to plant them. Till then I have nothing better than a rule of three to guide either of us: that rule is to have the leaves of one plant only six inches from the leaves of the next plant in the straight line, as you read this, and not over nine inches apart, or between the lines, or between the line you are now reading and the last one. No man or woman on the face of the earth can give a more sure guidance than that without knowing both the size of the plants and the particular varieties of each kind. Another certain rule in amateur practice is that it is safer to shake off every particle of soil from the roots just at the moment of planting, than to plant hard and half balls whole; but there is no need to do either, only see to it. D. Beaton.

BEDDING TROPÆOLUMS.

Will you oblige me with what information you possess with respect to the bedding Tropæolums? Does the sort grown at the Crystal Palace require any particular soil, or will it grow dwarf in any common garden soil? or is it that I have never been in possession of the true sort? I saw it two years ago at the Palace, and I bought some plants of what they told me was true; but, to my dismay, I last year made a bed of it, and it ran nearly all over the place without flowering. I have given it up in despair; but a reverend gentleman near me is anxious to try it, but would first like to obtain what information he can about it. At what distance should the plants be put apart? and are they planted generally in pots? but, if not in pots, in what soil? or must we first be sure we have the true sort? The same information will also oblige with respect to Carter's *Tom Thumb* Tropæolum, as we are about trying that this season. What distance should the plants be put apart, and in what soil to have a good compact bed?—Wm. Hopkins, *Gardener, Waterpery, Oxon.*

[The Londoners sold you seedling plants, probably; for seeds produce wildings only. The true bedding Tropæolum is to be had only from cuttings, and the true way to have them, and to give no trouble is to make them this month before flower-buds come; to keep lots of them in one large pot the whole summer; to keep them from flowering and running about; to prune them back pretty close in the middle of September, and ten days later to shake them entirely out of the soil, and to repot them and set them growing for the winter along with young Pelargoniums, and to cut away from these next February as if your fortune depended upon how many scores you could strike in a single week. The proper distance is, as you well know, to cover your beds so that a six-inch-wide cord could not be passed between any of the plants without touching a leaf. *Tom Thumb* Tropæolum must not be planted near *Elegans,* as it is too dull there; but all of them will grow and bloom well in any soil that would do for Barley or early Potatoes.]

WALKS OF BADLY BINDING GRAVEL.

The gravel here is both scarce and bad—bad because it will not bind; consequently it clings to the shoes, and is carried, not only on the lawn, but quite away, setting scrapers at defiance. I thought of mixing some with lime and sand and laying it down, but was told that frost would heave and spoil it. Is not tar (gas) used? About what quantity is required per yard, and how is it done? It would not look very nice, I suppose. I

should not much regard it for the kitchen garden, but should dislike it for the flower garden if it looks at all black. If you have never been plagued with such gravel some of your subscribers have, and will, perhaps, help me.—A Dorset Subscriber.

[The worst gravel we ever saw made the best walks that we have ever seen with two-thirds frosted chalk with it. The worst gravel in this kingdom will make walks firm as your shire pavement. Without being frosted it is only about one-third so good as cement for binding gravel. Two or three inches deep of the mixture, well rolled, and then thoroughly watered, and before the surface gets quite dry add as much of the sandy part of the gravel as will just hide the colour of the chalk, and when the surface is very near dry roll again, and the walk is as smooth as anything, and will last twenty years; but to keep the colour fresh it must be annually wetted, fresh sanded and rolled, just like painting a door. Lime is not very good for this.]

THE ROSE OUT OF DOORS.

The queen of flowers, the poet's favourite, the delight of the cottager, the loved flower of the amateur, and most highly esteemed of all flowers by the highest in rank in society, from royalty to the most humble possessor of a few yards of flower-border—Many somewhat large volumes have been written on its qualities, its culture, and propagation, yet it appears that a brief essay is wanting on these topics, and, therefore, I take pen in hand to give condensed information; but brief though my instructions may be, yet I hope they will be sufficient to guide a zealous lover of flowers to growing this best of them in a satisfactory manner.

CHARACTERISTICS OF A GOOD ROSE.

1st. *Form.*—The petals should be smooth at the edges, and the outer row should overlap each other, so as to form a circle. The next row should be rather shorter, and the next row shorter again, and so on to the centre. This arrangement should be the same whether the variety turns the petals a little back, or takes the cup form, the whole flower should have a slight globular appearance. Each petal should be stout, because thick petals give the colour more density.

2nd. *Calyx* or green outer cup.—This part of the flower should be stout and just open enough to allow the first row of petals to expand, yet strong enough to bear the petals up in the round form. In Moss Roses the finely-divided edges of the calyx form the moss, which should be abundant, and of a clear green colour.

3rd. *Colour.*—Self-coloured varieties should have the colour, whatever it may be, distinct and clear. If the flower is of a striped character the stripes should be well defined. Many good kinds of Roses have the lower part of the petal shaded. Whenever this is the case the shading should terminate at the same line on every petal.

4th. *Size.*—A large Rose with every other good characteristic will certainly be preferred to a small one: therefore, a large, bold, well-formed flower is decidedly superior to a tiny bloom, however good it may be.

5th. *Habit.*—This refers to the stem of the flower, the foliage, and the form of the bush or tree. The stem that bears the flower should be strong enough to bear the flower with its face upwards. The foliage should be glossy, and of a bright green, moderate in size, and of a pleasing form. The tree should be bushy and not too much crowded with branches.

6th. *Scent.*—This is one of the best characteristics of this beautiful flower, and is an indispensable one. I may venture to say that there is no flower whose fragrance is so pleasant as the Rose.

Such are the characteristics of a good Rose, let every grower bear them in mind, and choose such varieties, and grow those only that have them in the highest degree.

Soil and Situation.—Roses will grow in various kinds of soils, provided, if the situation is low and damp, that it is thoroughly drained. I have grown good Roses in peaty soil well mixed with marl or heavy loam; also on dry, gravelly soils well and heavily manured with that cool fertiliser cowdung, and mulched during the summer months with half-rotted stable dung. With proper attention and adjusting helps of a right sort to counteract the adverse soil, Roses may be grown almost anywhere, away from the smoke of large towns. In low, damp situations, of course, effectual draining is indispensable, and the beds of Roses should be raised above the general level. The best soil, where it can be chosen, is a good, sound, deep loam, well drained; and the best situation is one moderately elevated, but sheltered from the north and north-east winds. Shelters may be formed of any tall-growing shrub that has plenty of small twigs, such, for instance, as the Beech or Hornbeam. Of evergreens, Holly is, of course, the best. To form a quick shelter for the Rose garden, procure a sufficient number of well-branched Lombardy Poplars. When in foliage, this tree planted in a close row is very effective, even the first year.

Planting and Grouping.—If I were about to form a Rose garden and had the plants to buy, I would certainly visit one of the large nurseries in June or July, and then and there mark the kinds I would choose. The habit of any variety has very much to do with its value. Some that produce good Roses have them badly placed amongst the leaves; others produce so many buds that they cannot expand half of them. I would prefer such as show their bloom well above the foliage, and also such as rather spread out their branches. As an instance, I may give *Coup d'Hebe* as one kind that shows off its blooms well; and, on the other hand, the favourite *Géant des Batailles* has its branches so close that the blooms are frequently partially hidden. Having marked my kinds I would direct them to be well taken up after the first frost had turned their leaves yellow, and then order them to be well packed with the roots in damp moss, and sent off immediately. The ground being ready for them, make a large hole in a handy place, sift some fine soil, put it in the hole, and pour water in, stirring the fine soil at the same time till the soil is made into a puddle as thick as paint, then dip the roots of the trees in it, and plant them immediately. The best season for this work is the month of November; though they may be planted successfully through December, January, and February.

With regard to grouping, it depends upon the form of the Rose garden. If in beds, I would plant each bed of one colour, or approximating colours, or a few dark varieties in the centre of a large bed, surrounded with lighter-coloured varieties. If standards are planted, then I would plant the tallest in the centre bed, the next in height in the beds round the centre one, and so on to the lowest-sized dwarf in the outer circle of beds. By this arrangement, when the trees are in bloom they will have the appearance of an amphitheatre of flowers. If, however, the cultivator has only an ordinary long border to grow his Roses in, then he may plant his tallest standards at the back, the next size in front of them, and so on down to the low dwarfs in front. In such a border they might be arranged in the ribbon style: one row all of one colour, but varied in kinds, the next row in another approximating colour, and so on to the front row. Such an arrangement would be highly beautiful. T. Appleby.

(*To be continued.*)

MANAGEMENT OF SOME BEDDING PLANTS. CUTTING DOWN ANNUALS.

Would *Œnothera serotina* (sown last May) do to flower in July between a row of dark Dahlias and late Scarlet Geraniums?

[Yes, if the plants are properly cultivated.]

Will any of the following bear transplanting late, so as to succeed Clarkias, Nemophilas, &c., now up:—Anagallis, *Lobelia ramosa*, Larkspurs, *Phlox Drummondi*, Sweet Alyssum, *Silene alba*, *Salvia romæriana?* If so, how should I treat them? They are now about half an inch high in boxes, pots, &c.

[Anagallis and *Phlox Drummondi* do not transplant well so late. The rest will do so at any time. All that they need, in pots or on a temporary border, is to be kept from flowering.]

To carry out Mr. Beaton's plan of keeping bedding plants over the summer and autumn, should I pot young Verbenas, Calceolarias, and Geraniums now, and keep heading them down?

[No, not Verbenas, Calceolarias, or Geraniums, which make bedding cuttings at all seasons. But Anagallis, Petunias, Heliotropes, and *Unique* and *Ignescens* races of greenhouse Geraniums for beds, either do not give good cuttings, or none of real good in autumn, are kept in pots from May, stopped through the summer, housed in winter, and cut from in February and March.]

I am much troubled with the damp in my Waltonian Case, causing the plants to mildew: how can I remedy this? It does not arise from watering the plants, as after doing so, I leave the

glasses off for a couple of hours. Also, the lamp will not keep up more than 60° of heat, and never keeps alight from 10 P.M. till 7 A.M.

[We have not yet heard of any lady having lost a leaf in a Waltonian. You keep your Waltonian an hour and three quarters too long open each time, chill everything in it, then shut it up close with too little heat; no wonder your plants are liable to damp and destruction.]

It may be interesting to others to know that, having to leave home for six weeks last July, I cut down some beds of Clarkias, Candytufts, and Virginian Stocks below their flowering stalks, and some hedges of Sweet Peas to half their height, and they were just coming into full bloom again on my return the first week in September. I also found that cutting off all the blossom-buds of my bedding-out plants had an equally good effect.—E. N. N.

RANDOM GLEANINGS FROM KIMPTON HOO.

A DESCRIPTION of this place will be found at pages 2 and 54 of Vol. XX. In other words in Nos. 497 and 500 of THE COTTAGE GARDENER. About the middle of April, a neighbouring gardener drove me there, and a few things I think might be interesting to our readers.

The flower garden at the house had been altered so far last season, that the square on the south-side of the house that had a group in its centre has now a running chain-border in Box, and gravel all round the sides, consisting of small circles in the centre, and small triangles at the sides next the grass. This border forms, as it were, an appropriate setting to the group of jewels in the centre. A number of ladies told me last season how very nice it looked. Mr. Cox is very fond of it, as enabling him to have a great variety, and to try thoroughly a number of little ornamental plants. I will try and see it this season when in its beauty. The centre group remains as described at page 55, and there is a good breadth of grass between that group and the chain-border round the sides, which acts as a ground colour. I have seen many chains, but hardly any in a more appropriate position.

What was mentioned as a wilderness-wood has also been much improved. Masses of Laurels nearest the house have been cleared away, and the space laid down in lawn, and the wood itself will, ere long, be very interesting, as groups of small Rhododendrons have been planted at the most prominent positions by the sides of the walks, which in the yellowish loamy soil seem to thrive as well as the Laurels, and a fine collection of Pinuses has been planted through the wood; the intention being to clear away the undergrowth, &c., as the Pinuses grow. Under the protection they are now receiving, the plants are growing with great vigour. A wire guard surrounds the most of them at present.

In the kitchen garden, from its low position and contiguity to the water, winter vegetables had been cut off quite as much, or rather more than in some places in the neighbourhood. Brussels Sprouts and Scotch Kale had stood the ordeal well, and had proved invaluable during the winter season.

The walls of Pears, Peaches, and Apricots, were showing well. The former were protected by small poles being placed against the wall, standing about three feet from the wall at the bottom. Some long shoots were nailed or tied to these, and to them and the poles together, were fastened large Laurel branches, which whilst they admitted a good deal of light and a rather free circulation of air, would both retard the blossoms and protect them from severe frost. From the low position, Mr. Cox could not, he says, be safe, or satisfied, without this protection. The Peach-wall was in full bloom, and consisted of small trees of riders and dwarfs alternately, and which were kept small so as thoroughly to fill the wall, and yet the one not to intrude upon the other. In low positions, or where Peaches are not long-lived, this I consider to be a capital plan. The very mode of treatment, by keeping the trees full furnished near home, helps to secure health and longevity; and if a tree should happen to go wrong, so small an opening in the wall is made, that a young tree will pretty well fill it the second year. When a tree dies that occupied some twenty or thirty feet longitudinally of a wall, the wall looks blanky for years. Under this plan of keeping the trees in little space the decay is less likely; and if it took place the loss would scarcely be missed. Were I planting a wall again, I should be tempted to adopt this plan, were the circumstances not the most propitious. No wall could look better as to profusion of healthy blossoms. These were covered with fine hexagon netting, and allowed to remain on, the bottom being kept about three or four feet from the wall. Some Apricots were protected with calico or something of that kind, that was raised and lowered at pleasure like a window-blind.

The most striking thing in the vegetable way, was a fine lot of early Peas, just getting a little too hard in the pods to suit some epicures! Mr. Cox had served up an abundant supply at the Hoo races some ten or fourteen days previously. I can well believe that this has made the ears of some of the gardeners in the neighbourhood tingle not a little. We are always the better for being aroused out of our supineness. Where there is the convenience of plenty of glass this luxury may be obtained for those who especially desire it. Things are not done often, because they are not thought about, or are not valued when done. Such reminders are, therefore, useful to all parties. The getting Peas out of doors early is generally a matter of much consequence. It is now many years since I attempted getting them under glass. I had some nice Peas of *Bishop's Dwarf*, in April, but from some mismanagement on my part, or that of the *artiste* of the kitchen, they were pronounced *old* Peas, because they were so much larger than the usual first supply from frames and other early kinds six weeks later. I was sure that if tried fairly, they would have been soft as marrow. I have known first-rate specimens of *Veitch's Perfection* Pea sent from table untasted, just because the Peas were so large, and, therefore, *must* be old. The damper with *Bishop's Dwarf* cooled my ardour for early Peas. So much interest, however, has Mr. Cox occasioned with his nice Peas, that I feel confident that he will not be alone in his glory next season.

We shall all be better, however, of a lesson out of his book. The sort used was *Tom Thumb*, a very dwarf kind, sent out by the Messrs. Paul, of Cheshunt. Four Peas were inserted at equal distances round the sides of a seven-inch pot, in the beginning of January, and were placed and kept at first in a cold frame under glass. They were then removed to the upper shelf of a low pit-house, where a little fire heat was used—little more than sufficient to exclude frost. Each of the plants produced from four to five pods—say, from sixteen pods to a pot. They might have produced more, and continuously, but in order to concentrate vigour, Mr. Cox stopped the plants when they had shown that number of blossoms. The plants were about a foot in height, and some of them from which the bulk of the pods had been gathered were pushing again and showing blossom afresh. For concentrating growth, however, so as to have as many pods as possible at one time, the stopping would be an essential. The kind seems very valuable for such a purpose. Supposing that each pot averaged from twelve to sixteen pods, it would not take such a great deal of space to get a few nice dishes. Were it not for this never-enough-of-bedding material, there would be more room found for such purposes.

At the page referred to, a new span-roofed house was noticed, about 90 feet long and 14 feet wide. Side-walls 5 feet, half glass; height to ventilators at ridge from floor 9 feet; these ventilators being swung between double-ridge boards, and a cowel coping over them with openings at each side; the roof being fixed, and in large squares of heavy glass, the side-glass being all moveable. I mention it now for three things.

1st. *The mode of shading.*—This is done by fixing pieces of thin unstarched muslin by means of hooks and rings to the roof inside. This is quite sufficient to blunt the force of the sun's rays, and does not give too much shade, even in dull weather. Once put on it remains on for the season, and saves all bother in shading and unshading. Everything seemed to thrive well under this treatment. All outside shading by cloth, tiffany, &c., is expensive, as the material soon wears out, and there is the trouble of moving.

2nd. *Mode of arranging the plants in the greenhouse part.*—Fully half of the house is devoted to this purpose. A walk goes along the middle from end to end. In the greenhouse division there is a stage on each side, but the shelves slope on each side from the sill of the side-sashes down to within a few inches of the floor or pathway. All the plants are thus brought under the eye of the beholder. There being so much light, there is not the slightest tendency to draw the plants. For seeing the beauty of a plant, this plan has some advantages over setting plants on stages raised above or on a level with the eye, in which case the pot always comes in as a drawback. One of our best gardeners told me the other day that one of his ladies admired a fine plant in bloom standing on the floor of a vinery, and most of it, therefore, close to and under the eye; but she twitted him pleasantly

by saying, "You wo'n't be satisfied until you get it elevated on that high stage where only one side can be seen." He told me he felt the force of the hint.

3rd. *The extraordinary crop of Cucumbers.*—The other half of the house is divided into two, the path continuing along the middle with a pit on each side, with pipes at the bottom for bottom heat, and pipes round the sides with evaporating-pans for top heat. Half of that space, or from 20 feet to 25 feet in length, is devoted to Cucumbers, planted in the pit one on each side, and trained to a trellis about 15 inches from the glass roof. I have been rather successful with Cucumbers at times, and have seen fine crops in many places too numerous to mention, but I never saw anything to approach this little house. The man in charge said that a few weeks before they counted the fruit hanging, and found them above 200. I glanced my eye along one side, and, without being very particular, I made close on ninety of fruit from 4 inches to 18 inches long. There was hardly such a thing as a fruit standing alone: they were not only in pairs, but in threes and fours at a joint, and in several stages of growth. For instance: Take a joint at random, there is in one bundle a young fruit 3 inches long with the bloom on; a second 6 inches long and ¾ of an inch in diameter; a third 1 foot long, and one some 16 inches, requiring to be cut. The foliage was luxuriant and healthy; but there was not a leaf more on the plants than could get justice in the way of exposure to light. There seemed to be little fresh growth in the way of shoots, so that the process of stopping was next to a sinecure. All the vigour beyond the necessary foliage seemed thrown into fruit. There was not the trace of disease or insect of any kind. Such proofs of superior management ought at least to be chronicled. My neighbours, Mr. Fraser and Mr. Peacock, have seen the house, and expressed their astonishment.

What is the groundwork of this wonderful success? Chiefly, I believe, the skill of the cultivator. I admit, however, that the house is admirably fitted for the purpose. The brick walls enclosing the pits from the pathway may be from 3 feet to 3½ feet in height. The bottom-heat pipes are placed a little above the floor level, and there may be 1 foot to 18 inches of open rubble over them, and then the soil. In addition to this I noticed that the soil is raised considerably above the level of the wall in a ridge in the centre. The top dressing, at least, seemed to be rich leaf mould; and in addition to evaporating-pans on the pipes for top heat, it seemed to me that the surface of the bed was frequently sprinkled slightly, just to keep it moist. There is plenty of heat for bottom and top, and to be used as required. Something may also depend on the sort of Cucumber. It is a cross of Mr. Cox's between the *Telegraph* and *Sion House* or *Kenyon*. This house is used for winter and spring supply. The summer and autumn Cucumbers are procured in the usual way in pits and frames, and other sorts are used. This house sort does not seed very freely; and in order to keep it true some fruit are marked and saved before there are any other Cucumber-plants showing bloom on the premises. Mr. Cox is well aware that the finest kinds may be spoiled if there are other kinds within reasonable distance. By thus keeping this sort for house-growth alone, and the care in saving seed, he hopes to keep it true and distinct, and I heartily trust he will succeed. R. Fish.

CULTURE OF KALMIA LATIFOLIA AND SISYRINCHIUM ANCEPS.

I have had a *Kalmia latifolia* for three years in a pot, and cannot make it flower. I bought it in bloom four years ago. It has a good round head about eighteen inches across, and is in a five-inch pot in heath soil. It makes wood freely each season, and seems to ripen it well, too. Can you help me?

What is the *Sisyrinchium anceps?* I happen to have a small plant of it in a pot. Can you give any information about its treatment, &c.?—G. S. A.

[It has never been, and probably shall never be, plain or practical to grow *Kalmia latifolia* in pots after it is two inches high. The moment the plants are out of bloom, after forcing, or flowering without forcing, they are taken to a cold pit to harden off; and when they have recovered they are planted out of the pots, and are not forced again for three years. Forced Kalmias, or pot Kalmias, must be fresh and fresh.

Sisyrinchium anceps will do no good in a pot. It is a pretty grassy-looking thing with quantities of small, blue, Iris-looking flowers, and requires, to get all the goodness out of it, to be in a bed similar to that for Kalmias, Azaleas, and the more delicate American plants; but on very sandy soil *S. anceps* does tolerably well, and it is as hardy as a roebuck, only many people do not know that.]

PLANTS FLOWERING BETWEEN THE 1st OF JANUARY AND THE 1st OF MAY.

Last year I made a list of plants and shrubs that flowered in the open ground without any protection, between January 1st and April 1st. This year I have corrected and enlarged the list, and on account of the backward season have extended it to May 1st. I should now be very glad if you could find room for it in The Cottage Gardener, and if you would invite your readers to add to it as much as possible. By this means we should get a good (perhaps a complete) list of hardy-flowering spring plants. The value, however, of such a list will entirely depend on your correspondents observing two simple rules. First. To put down *everything* seen in flower, whether they think it ornamental or not. Second. To put down *nothing* but what they have themselves seen in flower. All mentioned in the following list I have myself seen in flower either in my own or my neighbour's gardens.

I am sorry to say that I did not record the time of the first blooming of the different plants, but, with very few exceptions, they are put down in the order in which they severally bloomed. —H. N. E.

Helleborus niger
" viridis
" olympicus
" orientalis
" atro-rubus
" " var. fl. albo
Jasminium nudiflorum
Garrya elliptica
Violets (single and double)
Crocuses
Snowdrops (single and double)
Tussilago fragrans
" alpina
Cyclamen Coum (two varieties)
Chimonanthus fragrans
Daphne Indica rubra (hybrida?)
" mezereon (red and white)
" cneorum
Eranthis hyemalis
Erica herbacea
" Mediterranea
" lanceolata
" cinerea alba
Hepatica, red (single and double)
" blue (ditto)
" white
Laurustinus
Gorse (single and double)
Coronilla glauca
Forsythia viridissima
Scilla precox
" Sibirica
" bifolia rubra
" Italica
Jerusalem Cowslips (purple and white)
Kerria Japonica
Aubrietia purpurea
Sisyrinchium grandiflorum
Grape Hyacinth (dark blue, light blue, and white)
Musk Hyacinth
Narcissus (double and single)
" minor
" tenuifolius
" bulbocodium
" bicolor, &c.
Cynoglossum omphaloides
Dondia epipactes
Virginian Stocks
Saxifraga oppositifolia
" " alba
" granulata fl. pl.
American Cowslips
Erythronium dens-canis
" " major
" " alba
Iris Persica
" tuberosa
" pumila
Veronica Andersonii
Saponaria calabrica (autumn sown)
Eccremocarpus scabra
Epimedium rubrum
Geum montanum
Honesty
Arabis
Doronicum Caucasicum
Draba Aizoides
Daffodils
Anemone nemorosa (single and double)
" Apennina
" garden (single and double)
Periwinkles
Adonis vernalis
Ribes sanguineum
Puschkinia scilloides
Mandragora officinalis
Orobus vernus
Primroses (single and double)
Polyanthus
Hyacinths (single and double)
Tulipa sylvestris
" garden (single & double)
Purple Fumitory
Auricula
Myosotis alpestris
" white
Fumaria cava
Leucocoryne alliacea
Lamium maculatum
" " fl. albo
Polygala chamæbuxus
Almond
Double Cowslips
" Daisies
Fritillaria meleagris (varieties)
" imperialis (red and yellow)
" nigra
" Pyrenaica
Jonquils (single and double)
Pansies
Primula Sibirica
Erodium Hymenodes
Andromeda
Iberis sempervirens
" Teucreana
Alyssum saxatile
Berberis aquifolia
" dulcis
" Darwinii
Gentiana acaulis
" verna
Pulmonaria Virginica
Walstenia geoides
Ornithogalum nutans
" umbellatum
Dielytra spectabilis
" eximia
Ficaria fl. pl.
Caltha palustris
" " fl. pl.
Trollius Europæus
Leucojum vernum
" æstivum
Oxlips
Wallflowers (double and single)
Magnolia conspicua
Phlox subulata, I believe, like Nelsoni, but with pink flowers
Onosma Taurica
Ophrys aranifera
Potentilla alba

STEAM ESCAPING FROM A SUPPLY-CISTERN.

I have a hot-water apparatus that has an open expansion and supply-cistern in one, with lid to take off; and when the water boils out comes the steam, and is in danger of scalding the plants and Vines. May I close up the cistern to prevent the escape of the steam with safety, and insert a small tap or stop-cock on which to fix a supply-cistern, closing it up steam-tight when not needed to give more water? The flow-pipes rise gradually to the expansion-cistern, and, of course, fall or descend the same to the boiler.—J. Hill.

[We never like the water to be near the boiling-point. When it is so the heated iron of itself contaminates the air of the house. It is better to have more piping. Much of this overflowing and steaming proceeds from bad firing. Three or four shovelfuls of fuel are thrown on carelessly when one would do. We do not say that this is your case. Provided the cistern is large enough, there will be no danger from expansion, and you may have a lid with veneered edges all round, which would prevent much steam escaping. If the water is apt to flow over, fix another cistern by the side of it, and let them communicate by an open pipe.]

HAND-LIGHT GREENHOUSE.

I beg to tender you my best thanks for the very kind manner in which you have treated my question in a late number. As, however, there are two or three points on which I should like to have your advice, I venture to trouble you again. I think your plan of a double bottom a very great improvement; but do you not think much of the heat would be lost in penetrating the galvanised iron? Suppose I was to adopt the plan of heating by hot water, how long do you think a vessel, or drawer, of zinc, would answer for warming the house? Would one heating be sufficient every twelve hours? I presume the vessel should be entirely closed to keep out the steam.

But, apart from all this, do you think a garden-frame of the same size would answer the purpose better? as I would as soon make one as the other; but it struck me the sketch I sent you appeared to be the more ornamental.

I am very anxious, if possible, to possess something which will protect Verbenas, &c., in winter time, which in these parts is severe; and, also, to give me an opportunity of raising Geraniums, Calceolarias, &c., from seed, which I should much like to attempt. My space for gardening, as far as flowers are concerned, is very small (although I have a much larger piece some distance from my house for vegetables), and the pygmy greenhouse is the largest one for size that I can afford, and if I could by any means construct it so as to protect the plants, it would hold all that I should want. Could you tell me the greatest degree of cold that such plants as I have named would bear without injury, supposing they were properly attended to, so far as removing dead leaves, watering, &c., is concerned?—A Lincolnshire Amateur.

[As we said before, such a small hand-light greenhouse will be most easily and beneficially managed, if it can be set inside a window facing the south, instead of being out of doors. We quite agree with you that the sketch sent might be more handsome, but it would not be so convenient. For instance: In such a little place heated or not heated, so long as the plants in it were watered, there would be a free condensation of moisture on the glass inside whenever the outside temperature became much colder than the temperature enclosed, which it would be apt to do, unless well covered up before such changes took place. Now, when tender things are grown inside, that condensed moisture might fall down just where it was not wanted, and play mischief so far as decay and failure were concerned. The air you could give at your openings will not at once prevent this. But suppose the top were in one or two pieces of glass, and laid on flat and moveable, you could easily take it carefully up and reverse it so as to place the dry side undermost, and the wet side uppermost. We have, otherwise, no objection to your fixed sloping roof. As to the plan of having a double bottom, we have no doubt that if the drawer is from three to four inches deep, the heat will be maintained under ordinary circumstances for twelve hours. The water being enclosed with wood, its heat would be slowly radiated, except through the sheet iron or thin galvanised iron above it. That will get hot fast enough, and it would be as well to have two or three inches of sand to set the pots on. When dry heat was wanted, keep the sand dry; when moist heat was required, let it be a little moist. Besides this we should like an upright tin tube or two—say, one inch in diameter, and fitted with a cork, so that warm vapour might be admitted or excluded at pleasure. With such a contrivance, just as in a Waltonian Case, you may raise any sort of seeds. To keep plants in winter, in most cases the moisture from the heat when applied would have to be excluded. A common frame, for preserving out of doors, would keep all such things best in winter, if it were raised above the ground level, a layer of dry ashes put in the bottom with some pieces of lime now and then, to help to purify the atmosphere and to absorb the moisture, and then to take out each plant that needed a little water, and let it drain thoroughly before replacing it in the frame. Not a drop more water should be given to the plants than they absolutely require. The frame should be well covered up in cold weather, and the sides should have at least six inches of clean, dry, Wheat straw tied firmly round them. With such precautions, the plants you have will often stand through the winter much better than those coddled with fire heat. Of course, plenty of air must be given in mild, favourable weather. Such plants will be better not to be below 35° for any length of time; but we have had them close on 32° for a month, and covered up all the time without injury. Of course, they were uncovered with care. Had they been exposed at that temperature, many would have suffered. Had they been covered up half that time, at a temperature ranging from 35° to 40°, we should have expected them to be much injured. We should be glad to oblige you; but, after all, with such small space, we believe you will be most successful with your miniature greenhouse placed inside of a room of the house, with a window facing, if possible, to the south.]

THE INDIAN PITCHER-PLANT, NEPENTHES.

No collection of stove plants should be considered complete without at least one species of the above. Though not gaudy, the amateur would find it an object of great interest. The graceful habit, fine foliage, with peculiar pitcher-like appendages, cannot fail to attract the most careless observer.

The first species was introduced to this country from China in the year 1789; but we are indebted to Messrs. Veitch & Son since the year 1840 for the two most beautiful species—namely, *Nepenthes sanguinea* and *villosa*. The same gentlemen have, through their collector, Mr. T. Lobb, made large importations of other kinds, such as *ampullacea*, *Hookeri*, *phyllamphora*, *lævis*, *Rafflesiana*, and others not yet offered to the public. They have also succeeded in raising seedlings of the last-named species, of which a fine collection is now in their possession at Exeter and Chelsea. For the cultivation of the Pitcher-plant a high temperature is necessary—say from 60° to 65° in the winter months, and from 70° to 95° during the spring and summer months.

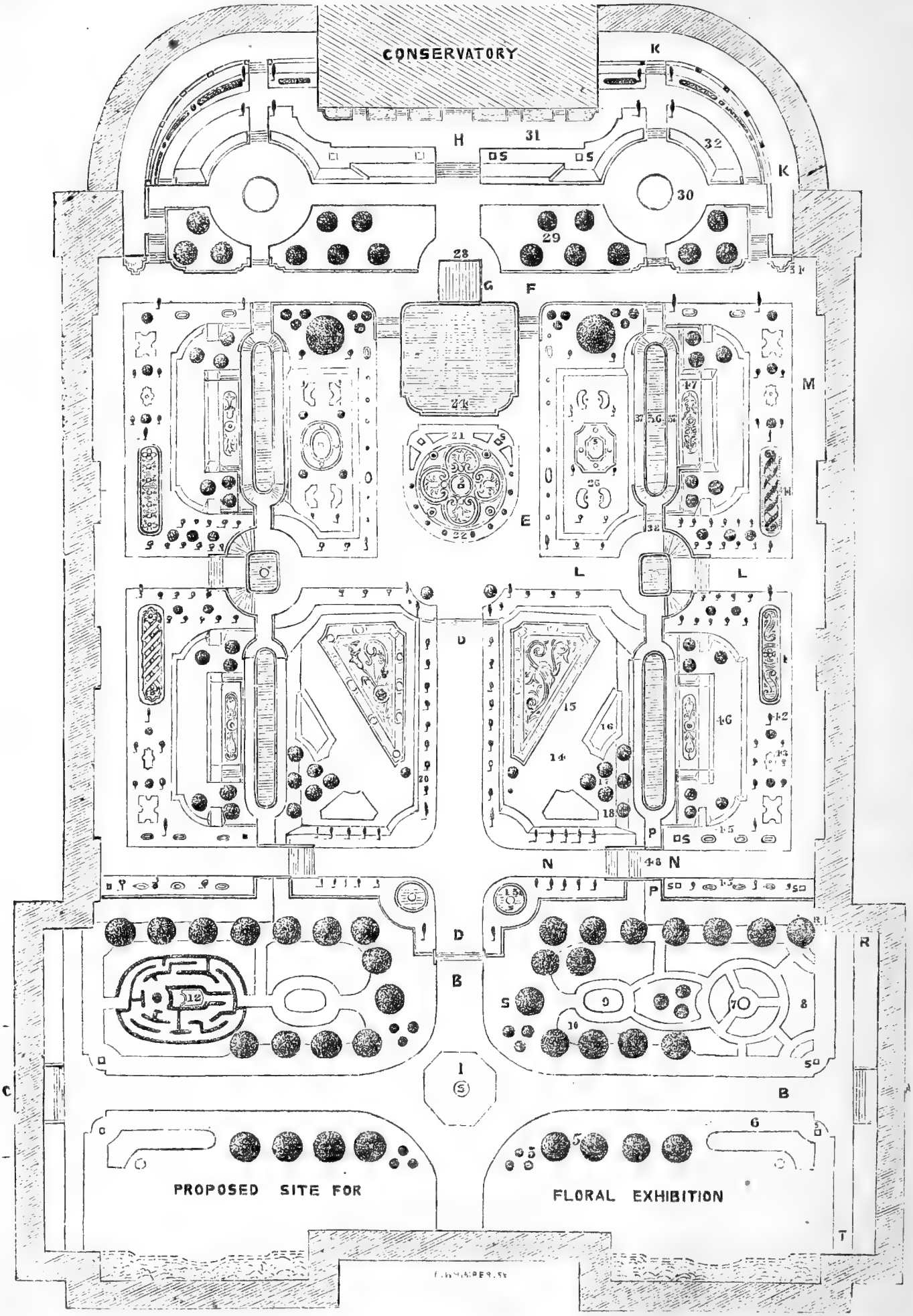
It has been asserted that plunging the pots in bottom heat is indispensable; such, in reality, is not the case, excepting to raise plants from seed, which are difficult to obtain. The flowers are diœcious; and, excepting in large collections, it is almost impossible to have a male and female in flower at the same time.

The repotting of the plants should be done about the middle of January. Great care is necessary in performing that operation; the black thread-like roots are liable to be injured if too much violence be used in reducing the old ball. The pots in which the plants are to grow should be perfectly clean. A liberal supply of potsherds should be used to secure the proper drainage of all superfluous water. After removing as much of the old soil as convenient, place the plants in such pots as will allow about one inch of light fibry peat and live sphagnum moss to surround the ball. Care must be taken not to press the soil too hard.

After potting, the house should be kept rather close for a short time, to allow the roots to become established in the new soil. After this time and during the summer the syringe should be used daily, and an abundant supply of water at the root while the plants are in a growing state. And it must be observed that in the winter months the plants should not remain dry at the root; and an occasional syringing in fine weather will be found highly beneficial.

With ordinary care fine plants may be had in perfection from April till September, the pitchers remaining in perfection for a long time.—S.

[We shall be obliged by your address, but for no other purpose than knowing how to communicate with you if necessary.—Eds. C. G.]


CONSERVATORY
PROPOSED SITE FOR
FLORAL EXHIBITION

DETAILED PLAN OF PROPOSED GEOMETRIC GARDENS OF THE HORTICULTURAL SOCIETY AT SOUTH KENSINGTON.

THE Architecture (the Conservatory and Corridors) is upon Three Levels, and the Gardens likewise are so, exclusive of the several Terraces.

Although the respective sites of tall single Trees and Groups are indicated to render the competition of the Design complete, they cannot as yet be particularised till much consideration is given to a selection of Plants already prepared for removal from the Society's Garden at Chiswick.

Many Seats and small Tazze will be introduced about the Gardens, which the small scale of the Plan renders it difficult to show; these are omitted, and sites for principal Sculpture only are given.

The Architecture is represented by *dark-grey* shading.
Walks, *orange*.
Trees of varied size, *green* circles.
Grass Slopes of Terraces and Groups of Shrubs, *neutral green*.

A Entrance from Exhibition Road.
B Centre Walk to Ante-Garden, leading to Principal Garden.
1. Basin for Nymphæa.
3. Ferns and Rock Plants.
5. Tall Trees, round and spiral.
6. Belt of Evergreen Shrubs.
7. Compartment for American Plants, with Grass Alleys.
8. Belt of Evergreens, to seclude the American Compartment.
9. Pheasantry, 50 feet by 30 feet.
10. Mass of Shrubs.
11. Aviary for Song Birds.
12. Maze, formed by Yew or Hornbeam Hedges, about a quarter of an acre.
C Entrance from Prince Albert Road.
D Centre Walk to Principal Garden, on a higher level than Ante-Garden.
13. Basins.
14. Diagonal Grass Promenade (access by Grass Ramps).
15. Large Compartment for Flowers and Box Embroidery.
16. Mass of very low Shrubs.
17. Group of low Trees.
18. Shrubs of medium height.
19. Avenue of Spiral Evergreen Shrubs.
20. Standard Portugal Laurels on the Verges, which latter are 15 inches above the Surfaces of Compartments and Promenades.
E Branch Walk to Conservatory Terraces.
21. Circular Compartment for Flower-beds and Box Embroidery.
22. Standard Roses.
23. Dwarf Evergreen Shrubs.
24. Large Basin, with Cascade 18 feet wide and 11 feet high.
25. Compartment for Flower-beds (without Embroidery) accompanied by
26. Groups of Flowering Shrubs, &c.
27. Standard Rhododendron.
F Lower or First Terrace.
G Second Terrace.
28. Memorial Sculpture for Great Exhibition of 1851.
29. Large Trees.
30. Band Houses (East and West) on circular paved Platforms.
H Third Terrace.
31. Kerbed Bed for Flowers between Steps to Conservatory Arcade.
32. Belt of Shrubs.
K Upper Terrace, on a level with Upper Corridor.
33. Steps down to Band House and Lower Terrace.
34. Kerbed Bed for tall Flowers.
35. Steps to the Lowest Level of the Garden.
36. Canals for Running Water supplied by Cascades.
37. Walks round Canals (seats under Retaining Walls of East and West Terraces).
38. Basin, with Jets.
39. Steps to Lower Terraces, opposite Centres of Middle Corridor.
L Centre Cross-walk from East and West Corridors.
40. Avenue of Standard Roses, and Beds for Dwarfs.
M Middle Corridor Walk.
41. Frieze Compartments for medium-sized Flowers.
42. Kerbed Beds for tall Flowers.
43. Moulded Kerbed Beds, with large Tazze for tall Flowers.
44. Group of Low Flowering Shrubs.
45. Spiral Plants and simple Kerbed Beds for tall Flowers, such as Dahlias and Hollyhocks.
46. Panels of East and West Corridor Terraces, with Lime Trees on their flanks.
47. Glacis sloping towards Canals, each embellished with Embroidery only (the object of the Glacis is, that the Running Water of the Canals, together with all other features across the Garden, may be visible from the Corridor or First Terraces).
N South Cross-walk of Principal Garden.
48. Bridge and Steps.
49. Ramp, to descend to the level of Canals.
P Walk under the Bridge, leading through the Lower Corridor of Ante-Garden (**R**).
RT Walk from North to South Lower Corridor.
S Signifies sites for principal Sculpture, whether for Figures or large Tazze.
The Upper Terrace, **K** (above the Band House), would be favourable for Statues of Eminent Musical Composers.

We take this opportunity of observing that Mr. Beaton was misinformed when he stated last week that Mr. Nesbit is the designer of this Garden. It is entirely the suggestion of Mr. Nesfield.

GISHURST COMPOUND—STOPPING CHINA ASTERS—SYRINGING VINES—JONQUILS AND AURICULAS NOT BLOOMING WELL.

I HAVE used Gishurst Compound in the proportion of 1 oz. to a little less than a gallon of water, to eradicate green fly from Verbenas, but it has had little or no effect. I kept the shoots pressed down into the water for about half a minute, and did not syringe with clean water after. The next day the green fly appeared quite merry, though not *quite* so numerous, and the leaves do not look the better for the operation. Should I repeat it?

[You should use 2 ozs. to the gallon, and repeat the application two or three times at intervals of a day or two, according to the severity of the attack.]

May Asters be pinched back? I want some coming up now to succeed a bed that will be out of flower about the middle of August. Will shortening them make them bloom later?

[China Asters will do no good if they are once stopped or touched at the top, or on the side. For filling beds which are over by the end of August, and all through September and October, the way to do it is to sow the Asters very thin in rows in the kitchen garden, from the 10th to the 15th of May in each year, to husband them as if they were Cabbage plants, and no bed need be empty in the autumn if you have a square of ground full of transplanted Asters in the kitchen garden to go to and remove them at any day in the season.]

Should Vines be sprinkled with water (very fine through an engine) till they come into bloom, and again after the berries are formed? And after syringing should the house be closed up, or should a free circulation of air be encouraged?

[It is a thoroughly good plan to dash ten times more water against Vines and against the walls or rafters and glass than is usually done, from the first movement of the buds to the beginning of the colouring of the berries, except for the few hours the pollen is on the wing. It is the want of thorough moisture at the roots, and nothing else, is the cause of so much nostrums for killing insects. Mr. Carter, of Holborn, sent us a pot of some wonderful cure against insects, and the insects must have heard of it, for none came near us since. If the dashing of the garden engine is done after four o'clock in the afternoon in a vinery in *May* and *June*, and in May and June only, recollect, no need of any more air on that evening, unless the thermometer rises above 100°. Some will tell you to keep the house shut up for one hour only, after syringing, then to open it to cool down as soon as possible, so as to make the night rest longer. But that is not "natur," nor our practice or advice.]

For the last five years my double Jonquils have refused to blow. They are planted in beds on a south border, and every attention has been given to compost, &c. Can it be that planting bedding plants with them has caused their deterioration? What treatment should I pursue with them?

[The same want of suction at the roots, is at the bottom of the Jonquils, and these bedding plants at the top are the ruin of

them, or soon will be. To grow Jonquils well in beds for summer plants, they should be planted in single rows, just in the centre of where two rows of bedding plants will stand. Every third year, in October, the Jonquils ought to be separated, fresh planted, and in *fresh* soil. *Fresh soil* is the main secret, but too crowded at the bulbs, and getting knocked about with fiddling bedders, do much of the mischief.]

For the last three years my yellow Auriculas which used to bloom magnificently have failed. The bunches of blossom are small, and half the flowers in them decayed. What can be the reason? They are in capital soil.—Q. Q.

[Yellow Auriculas, and the other best border kinds, with all the best border Polyanthuses, to give them justice, ought to be fresh transplanted every two years, and to have some fresh soil from a meadow, and a little very rotten dung every time. The first and second weeks in March, or the last week in February, is the right time for this.]

ARRANGING VERBENAS.

Will Mr. Beaton forgive me if I pick a few holes in his very useful paper on Verbenas.

In the first place I object to *Evening Star* being given such a good place. Its habit is good and the shape of its pip good, but the colour is *very* dull, almost muddy.

Brillante de Vaise is not vermillion. It is *hardly* crimson scarlet.

Gloire de Paris is much more effective, in my opinion, in a mass than *Géant des Batailles;* it blossoms so much more profusely, and is very much more the same colour.

Sufficient praise is not, I think, given to *Chaurerii*, where it succeeds. No scarlet Verbena makes so glorious a bed.

Then, to call *Lord Raglan* light scarlet. It is a dull, very dull Geranium. A miserable colour compared with exquisite *Cardinal Wiseman.*

I cannot consent to have *Lady Havelock* overlooked in the list of true Roses, and it stands rain better than any of those mentioned by Mr. Beaton.

I have done. I tremble at my temerity, but will not retract a word. Men, they say, never know anything about colours, so I have taken extensive feminine opinion as to my correctness.—Q. Q.

[There is no more practical value in discussing the shades of colours than the shades of men's opinions on politics. If "Q. Q." will plant the opposite quarter of the Verbena garden, that opposite to the only quarter I planted, no one can read his planting without being wiser; and if "Q. Q." will do me the favour to read that article again, he will find that he has shot holes in a very different hide to mine, for he has not even pricked my skin. Yet I am more pleased with him than with any other reader, except one, a fair lady, who has sent a world of wisdom about arranging Verbenas and other plants.—D. Beaton.]

CULTURE OF THE FORGET-ME-NOT OF THE CHATHAM ISLANDS.

In reply to Mr. Beaton, rather than he should murder his *Myosotidium nobile*, and require me to give him two others for his indiscretion, I will tell him all I know about it.

I recollect well the first time I saw it Mr. Beaton and I admiring it, and we both fancied it could be propagated in any quantities from the roots. Some time after I thought if I bought it I should be able to get any quantity and let my customers have it at a moderate price; but I have been very much mistaken. Soon after the plant was exhibited by Mr. Watson, of St. Albans, at the Horticultural Society's rooms. I went down to St. Albans with these fancies in my head, and gave Mr. Watson two hundred guineas for the stock of it. But I am very sorry to say, both for me and my customers, that I have never been able to get one plant from the roots; the only way is by division of the plant or by seeds, which it produces if grown nicely, but not else. What Mr. Beaton says about the plant in a great measure is correct. It should be placed in a cool place all the summer, the cooler and shadier the better. If put into a little heat in October, and kept in a temperate house until January, or at latest until February, it will be in bloom and remain so for a long time. I find it does not like much heat; but in a temperature from 45° to 50° it will thrive amazingly, and go on blooming for a long time, each head of bloom getting larger as it lengthens. I have a plant now in bloom, which I keep in a north house shaded, that has seven heads of bloom; some of them are five inches across, and anything more beautiful it would be difficult to conceive. I have some seedlings that I have raised and flowered which vary very much. Some of their flowers are as large again as others. It is a plant that requires a good deal of pot-room while growing; after which it should be in a cool frame at the back of a north wall with the lights tilted up, and kept at rest until the end of September, when it should be shaken out of the old soil and repotted in a light rich one, with plenty of vegetable soil in it, such as decayed leaf mould, or a little very decomposed cowdung, mixed with turfy loam and sand. I have been told by a captain of a merchantman, who has traded down at the Chatham Islands, the finest plants he has seen there are those that are growing in such places, as, that when there are high tides, the sea washes over them. Perhaps we have something yet to learn about the plant. I am trying an experiment with salt; but, in case the captain should draw a long bow, my experiment will only be in a small way.—J. Standish, *Bagshot, Surrey.*

EVERGREEN UNDERSHRUBS FOR A PLANTATION.

We have a plantation in which some vacant spots would, we think, look well planted with evergreen and other kinds of shrubs; but as we do not wish to destroy the game in it, I should feel very grateful if any of your readers would tell me the names of some ornamental shrubs which are not liable to be destroyed by hares or rabbits. The plantation is on one of the high lands of Yorkshire, so the shrubs must be hardy ones.—E. C. E.

[The best under-cover plant for pheasants, woodcocks, snipes, and abominable hares and rabbits, is the common evergreen Barbery (*Berberis aquifolia*). It will grow under trees and in all soils. On the poorest sandy soil it seems to do the best. In May it is the richest blooming plant we have. In the autumn the birds eat up the berries greedily, and sow them that way, and no animal will bark it. The next best cover plant is *Rhododendron ponticum* for the birds and "varmit" rabbits, but a very bad plant for the gamekeepers and the sportsmen, for it crackles away like glass under their tread when they have no time to look before they leap. The common Privet is the fastest-growing plant for under cover, and it is equally exempt from the jaws of all nibbling creatures. But the best plant for breeding game in is the common Tutsan (*Hypericum calycinum*). We have trodden acres of it under dense trees, which were as literally alive with young pheasants, as small islands near the coast are with ducklings where water-fowl breed extensively.]

A MINIATURE POND IN A DRAWING-ROOM.

Can you give the names of any plants to look green, if nothing more, in the air of an ordinary drawing-room? A friend of mine has a large table with a fish-pond in the centre, and "dry land" at the corners where Mosses and Ferns are planted, and her desire is to vary the foliage if she cannot have bloom. Of course you understand there is no cover.—A.

[For such a purpose nice little tufts, either planted out or grown in pots, of such Grasses as striped Gardeners' Garters, Animated Oats, *Dactylus glomerata variegata*, and such varieties of *Holcus saccharatus* as are advertised in our columns, would break the monotony. Such Amaranthas as *bicolor, tricolor*, and even *Coleus Blumei*, would be interesting for their foliage in summer. Myrtles and such hardy striped Grasses, and variegated Geraniums as *Lady Plymouth*, would be interesting in winter. If we knew the size exactly we might be able to say more. Variegated Ivies trained to a single stem, and then allowed to dangle weeping fashion from the top, would also look well, and do at all seasons.]

FORCING THE SIR HARRY STRAWBERRY.

Is your correspondent "Q. Q.," certain the plants he saw were *Sir Harry?* as from his description it agrees in no particular with the true *Sir Harry*. If he has two varieties, one must be wrong; and if either is true, it is the one ten days later than the other.

As the raiser sent out, probably by mistake, a quantity of *Hooper's Seedling* mixed with the *Sir Harry*, it is, perhaps, that kind, as it is a free bearer. I placed a quantity of *Keens' Seedling* and *Sir Harry* in the same house at the same time, and the *Keens'* were ripe before the berries of the other were formed.

It does well in pots as a late crop, but will not stand a strong heat, as it gets long in the leaf, and covered with red spider.

Sir Harry is an excellent kind in some soils, does not make many leaves, so may be planted thickly; but it never bears such quantities as mentioned by your correspondent. For my own part, I should like to see the kind that does, for if the quality was good it would drive the other sorts out of the market.

It was certainly modest to limit the number to fifty good sized berries, and not one of the best plants; it is most probable that many of the fifty will go the way of the heaps of small ones.

As regards *Keens'* failing the fault cannot be in the kind, as it is well known to be the best for the main crop of forced Strawberries.—J. T.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page* 91.)

RASPBERRIES.

LARGE MONTHLY (*Large-fruited Monthly; Rivers' Monthly; de Tous le Mois à Gros Fruits Rouges*).—This is a most abundant bearing autumnal variety, producing fruit above the medium size, roundish-conical, of a crimson colour, and of excellent flavour.

Large Red. See *Barnet*.

Late-bearing Antwerp. See *Red Antwerp*.

Lawton. See *New Rochelle*.

Lord Exmouth's. See *Barnet*.

MAGNUM BONUM.—A yellow summer-bearing variety, inferior in size and flavour to Yellow Antwerp. The fruit is of a pale yellow colour with firm flesh. The plant, like Brinckle's Orange and Belle de Fontenay, becomes a perfect weed from the profusion of suckers it throws up.

Merveille de Quatre Saisons Jaune. See *October Yellow*.

Merveille de Quatre Saisons Rouge. See *October Red*.

NEW ROCHELLE (*Lawton; Seacor's Mammoth*).—An American autumn-bearing variety, having the rambling habit of growth of the common Bramble. It produces fruit in great abundance of a large oval shape, and a deep black colour, very juicy, and agreeably flavoured.

This has not been sufficiently proved in this country to admit of a correct estimate being formed of its merits.

NORTHUMBERLAND FILLBASKET.—Fruit rather large, roundish, inclining to conical, of a deep red colour, and good flavour. The plant is a strong vigorous grower, and an abundant summer bearer.

OCTOBER RED (*Merveille de Quatre Saisons Rouge.*)—The fruit of this variety produced from the old canes left in spring is small and inferior; but the suckers put forth in June furnish an abundant crop of large-sized bright red fruit, which commences to ripen in September and continuing far into November, if the autumn be dry and mild.

OCTOBER YELLOW (*Merveille de Quatre Saisons Jaune*).—This possesses the same qualities as the preceding, and is distinguished from it by the fruit being yellow. It is not quite so large as the Yellow Antwerp, and in a fine season is sweet and agreeable.

OHIO EVERBEARING.—This is an American variety, similar in all respects to Black Cap, with this exception that it is an autumnal-bearing variety, and produces abundant crops of fruit late in the season.

Orange. See *Brinckle's Orange*.

PRINCE OF WALES (*Cutbush's Prince of Wales*).—Fruit large, roundish, inclining to conical, of a deep crimson colour, and with a brisk, agreeable flavour. This is a summer-bearing variety, remarkable for its strong pale-coloured canes, which in rich soils grow from ten to twelve feet in one season. It does not sucker too much, and is very desirable on that account.

(*To be continued.*)

HORTICULTURAL SOCIETY'S COMMITTEES.

FRUIT COMMITTEE.

A MEETING of the new Fruit Committee as constituted for the present year was held at 8, St. Martin's Place, on Tuesday, the 8th; Rev. L. Vernon Harcourt, V.P., in the chair

There was a large attendance of the new members, who took great interest in the proceedings; and there is no doubt, constituted as the Committee now is, that the object for which it was instituted will be rapidly and effectually promoted. It is intended immediately to appoint Local Committees in different parts of the country to communicate with the General Committee, and to supply such local information as may be considered desirable.

Mr. Gardiner, gardener to Sir George R. Philips, Bart., of Weston House, Shipston-on-Stour, sent a very beautiful dish of forced Peaches, which were greatly admired, and were awarded a Certificate of Commendation. Mr. Gardiner stated that he began to gather the crop on the 21st of April.

Mr. Hill, of Keele Hall, sent a fine dish of *Oscar* Strawberry, which he found was well adapted for forcing; but the flavour of the fruit was acid.

A Seedling Strawberry, called *Eclipse*, was exhibited by Mr. W. Reeves, of Rochford. A plant was shown in a pot, bearing a profusion of fruit, the flavour of which was excellent. It seems to force well, and may prove a valuable variety.

Mr. Dwerrihouse, gardener to Lord Eversley, Heckfield, exhibited two fine boxes of forced *Sir Charles Napier* and a few *Bicton Pine* Strawberries, both of which were large and handsome.

John Lamb, Esq., of Newcastle, Staffordshire, sent a dish of fine-looking *Ribston Pippin* Apples which had been kept in glazed pans, and placed in a cellar; but their flavour and juiciness were passed.

Messrs. Ivery & Son, of Dorking, sent a dish of *Mickleham Pearmain* Apple, which, at this late season, were found to retain all the character of a first-rate late dessert Apple.

FLORAL COMMITTEE.

A Meeting of the Floral Committee was held on Thursday, the 10th inst.; Rev. Joshua Dix in the chair.

This was a very crowded Meeting, and the exhibitions were numerous. Mr. J. Kinberry exhibited a large collection of Seedling Verbenas, many of them very effective in colour, and would, doubtless, be well adapted for bedding; but as they lacked the "points" which the florists require, and as many of them were not considered to be improvements on older varieties, they did not receive special notice. Mr. Turner, of Slough, exhibited three Seedling Pelargoniums, and also a beautiful collection of Auriculas; to the latter of which a Special Certificate was awarded. A Seedling light-purple Auricula *Richmond Seedling*, also exhibited by Mr. Turner, received a First-class Certificate. Mr. Keynes, of Salisbury, brought a beautiful collection of Pansies, which were much admired. Mr. Judd, of Althorp Gardens, sent a Seedling Geranium, and Mr. Bragg, of Slough, a Seedling Pansy.

M. Linden of Brussels, sent some very fine variegated-foliaged plants, of which *Campylobotrys regalis* and *C. smaragdiva* received First-class Certificates; and *Theophrastia* (?) *argyræa* and *Maranta argyræa* Commendation Labels. The same gentleman also sent *Asplenium myriophyllum*, a lovely little Fern, to which a First-class Certificate was awarded.

Mr. Veitch, of Chelsea, sent a beautiful Fern, called *Microlepia hirsuta*, which, like the Davallias, or Haresfoot Ferns, throws out long rhizomes over the pot. To this a Certificate of Commendation was awarded. He also sent a noble plant of *Costus nobilis*, producing large oval hairy leaves of a pale yellowish-green colour, obscurely banded with darker green; and a fine plant of *Ataccia cristata*, which was pronounced by old plant-growers to be the finest specimen of that plant they have ever seen produced, and a fine example of skilful cultivation.

A beautiful new *Caladium*, as yet unnamed, was exhibited by R. Warner, Esq. The plate of the leaf is of a dark velvety green, and the midrib and ribs are dull white, forming a fine effective contrast.

Mr. Kinghorn, of Richmond, exhibited a Seedling Azalea, *President*, to which a First-class Certificate was awarded. It is of a fine compact habit of growth, with a profusion of finely-shaped rosy-crimson flowers which stand well out from the foliage.

From Mr. Standish, of Bagshot, came two very large and finely-bloomed plants of *Myosotidium nobile*, to which a Special

Certificate was awarded. In another of our pages to-day are his notes on its culture.

Messrs. E. G. Henderson & Co., of Wellington Road, sent a collection of pretty little finely-bloomed greenhouse plants.

TENDERNESS AND HARDINESS OF VARIOUS CONIFERS AT YORK.

As there can be no doubt that the winter just past has been a season of severe trial to the whole tribe of Coniferæ, and that there is a very general desire to know the extent of its ravages in order to learn a useful lesson for future guidance, I am induced to send to The Cottage Gardener the little that I can say upon the subject; in doing which I shall not confine myself entirely to the last winter's doings, but state my own experience for the last ten years. I wish to say that in some cases it is highly probable that I failed for want of knowledge. I certainly should not plant some kinds now in situations where I planted them in 1850. I thought that when certain kinds were said (in the catalogues) to be "perfectly hardy," it was meant that they were so in any situation however exposed; but I know better now, and I shall be very glad if my limited experience should be of use to any one who is in the same state of ignorance that I was in ten years ago.

I shall divide the list of the Coniferæ that have been planted here into three classes: First, those that have been entirely lost by frost or exposure; secondly, those that are disfigured more or less by being partly killed, or the foliage injured by frost, &c.; and lastly, those that have been found perfectly hardy in the sense that I originally understood the words.

And first, we have lost *Pinus insignis*, *P. halepensis*, *P. Llaveana*, *P. Gerardiana*, *Cupressus torulosa*, *C. Lambertiana*, *C. macrocarpa*. Of these, I would observe that *P. insignis* appears to be too tender for the climate here. We have had three fine trees planted in well-sheltered places, and they have all been entirely killed by frost. The one killed this winter had not a particle of life in it in January. *P. Gerardiana* is said to be hardy: I can only say that it has not proved so here. The Cupressi were all killed to the very roots by frost, though in tolerably sheltered situations, and when they had attained the height of seven to eight feet each at least.

The second class is much more extensive and important; and I approach it with great diffidence, as I am aware that many will differ from what I have to say about it. We have now growing here, more or less injured by frost or exposure, the following:—*Pinus excelsa*, *P. strobus*, *P. cembra*, *P. cembra* var. *Helvetica*, *Abies Morinda*, *A. rubra*, *A. Canadensis*, *A. Douglasii*, *Picea Pindrow*, *P. Webbiana*, *Taxodium sempervirens*, *Cryptomeria Japonica*, *Cupressus funebris*, *Cedrus deodara*, and *Araucaria imbricata*. I will tell the state of each at this date (May 1) as briefly as I can.

The first four are planted in fully exposed places. *P. excelsa*, nine feet in height, is completely brown in its foliage and is very unsightly. The other three have not suffered so much, but none of them grow well: they are cut more or less on the north side, showing that shelter is wanted.* *Abies Morinda*, *rubra*, *Canadensis*, and *Douglasii* are much in the same way: all have lost more or less of their foliage, though not so much exposed as the others. *Picea Pindrow* and *Webbiana* are very uncertain, and it is a great pity, for they are beautiful trees. If they are not well sheltered the foliage is sure to be destroyed, if not the trees also; and if they are well sheltered, as ours are, they push so early in spring as to be caught by late frosts, and they are very tender indeed when they have begun to grow. Perhaps when they attain a large size they do better—ours are not more than three feet. The Taxodium and Cryptomeria (eight feet high) are killed down eighteen inches at least, and most of the branches are killed at the ends for a foot or more; they are brown besides where they are not dead and are very shabby now. *Cedrus deodara* has lost its foliage nearly all over it, though not much of the wood is dead. *Araucaria imbricata* (where fully exposed) is brown, but I think will recover. Its appearance, however, is spoiled for the present; but those that are well sheltered are looking well. None of these kinds can safely be planted, I think, on an exposed lawn, or as specimens in exposed places, without disappointment. The same amount of shelter will not be required by all of them; but it will be found necessary on the north and east sides, in the northern part of the kingdom at least.

The following, which we have, are, I think, "perfectly hardy:"—*Pinus sylvestris*, *P. Austriaca*, *P. Laricio*, *P. Calabrica*, *P. Taurica*, *P. Pyrenaica*, *P. Hamiltoniana*, *P. Beardsleyi*, *P. Jeffreyii*, *P. Mugho*, *P. ponderosa*, *P. pumilis*, *P. rigida*, *Abies excelsa*, *A. alba*, *A. nigra*, *A. orientalis*, *A. Menziesii*, *A. Whitmanii*, *A. Sibirica*, *Picea balsamica*, *P. Fraserii*, *P. nobilis*, *P. pectinata*, *P. Pinsapo*, *P. Nordmanniana*, *Cedrus Libani*, *C. argentea*, *Cephalotaxus Fortunii*, *Cupressus Tournefortii*, *Thuja Americana*, *T. orientalis*, *T. Tartarica*, *T. Sibirica*, and *T. aurea*, *Juniperus Chinensis*, *J. excelsa*, and *Wellingtonia gigantea*. These have all stood last winter uninjured as far as I can see. Some of them are sheltered a little, but are exposed on all sides but the north. I need not say much about them. *Picea nobilis* and *P. Nordmanniana* are now the best for colour decidedly. The Wellingtonias are brown by exposure, but not killed at all. One is three feet high, and was sheltered artificially by driving a circle of stakes at eighteen inches from the ends of the branches, and winding them with the withered stems of Dahlias and Hollyhocks. We have five that are less, and they are thoroughly exposed on the south, east, and west sides, and not much protected on the north, yet they have stood quite as well as the protected one. I believe I am right in saying that the Wellingtonia is really hardy in the proper sense of the word.

We have also *Pinus Benthamiana*, *P. Monspeliesnis*, *P. monticola*, and *P. palustris*, *Abies Cilicia*, *Picea laciocarpa*, *Saxgotha conspicua*, *Libocedrus Chinensis*, and *Thuja glauca*; but they are small, and as we have not had any of them more than one year, I shall pass them over by observing that they are all alive.

I know that what I have said is of little use to a practical man, he knows it all, and more than I can tell him; but there are many amateurs like myself, and let us say, *sub rosa*, some gardeners, too, that have been planting with but indifferent results; and the Coniferæ are, in general, expensive. To such I would give two or three hints that may be useful. I believe that Pines are generally too large when planted. Six to nine inches high I think the best size for the hardy sorts. They will make far finer trees, and in seven years will generally outstrip the three or four-feet specimens purchased at more than double the price; besides, I have found the smaller ones far more certain to grow, and that is something.

The most expensive kinds are generally in pots. In that case, it is of the greatest importance that the roots be spread out with as little injury as possible, in the same position they would have been in if grown in the open ground without having been in a pot at all. The result of inattention to this will probably be, that the trees will, if exposed to the wind, be blown down for want of sufficient roots before they reach six feet in height; and, lastly, I would advise every one to plant none of the kinds until he has seen them growing well in some situation similar to the place where he intends to plant them himself; and, allow me to say, that this trite and homely advice is, perhaps, the best that can be given on the subject. I have said nothing about soil, &c.; but a good deep loam, on a dry, sound bottom, will suit most of them, and for some varieties it is indispensable if they are to do well.

I have now to apologise for the length of this communication, but it is a favourite subject with me, and I shall be glad if some others more qualified than myself will give an account of the state of their Coniferous trees *now*, in order that we may know what kinds to plant in future, and what to avoid.—W. P. Ruddock, *Cemetery, York*.

* *Pinus excelsa*, ten feet high, at an elevation of 300 feet above the sea's level, at Winchester, fully exposed to all winds, on a chalk subsoil and light moderately fertile surface soil, is quite uninjured—Eds. C. G.]

TRADE LISTS RECEIVED.

A List of Soft-wooded, Bedding, and other Plants, by E. G. Henderson & Son, Wellington Road, St. John's Wood.—This is one of those bulky catalogues of Messrs. Henderson, which claim to be classed more among books than trade catalogues. It contains all that is new and all that is old worth growing, with full and in some instances lengthened descriptions of the articles enumerated. In glancing over it we find a statement which may lead some readers astray with regard to *Allamanda violacea*, which is stated to have been discovered by Dr. Gardner, in Ceylon. If we mistake not, Dr. Gardner discovered this plant in the Brazils, some years before he went to Ceylon. It is not often we find our friends napping, and we feel assured they will thank us for a gentle "nudge" when we do. Among the Geraniums is a very particular account of Mr. Beaton's new varieties, *Carmine Nosegay*, *Nosegay Stella*, and *Silver-variegated Nosegay*.

A Catalogue of Ferns, Exotic and Indigenous, offered for Sale by Robert Kennedy, Covent Garden, is a very creditable production, beautifully got up, and illustrated by faithfully executed engravings of the principal genera. This is quite a new and attractive feature in trade catalogues.

Supplement to Carter's Vade Mecum, being a Complete List of Bedding Plants, &c., by James Carter and Co., Holborn.—In this pamphlet we have copious lists of all the best varieties of Geraniums, Verbenas, Petunias, Fuchsias, Calceolarias, Dahlias, Chrysanthemums, Achimenes, Begonias, and a host of other things, for particulars of which we must refer our readers to the catalogue itself.

TO CORRESPONDENTS.

PEACH AND PEAR TREES BLIGHTED (*G. W. Bell*).—The roots have evidently penetrated to the clay subsoil. By taking off the surface soil down to the first roots, and putting over these an inch or two in depth of rich soil, you may do the trees some good; but you can adopt no permanent remedy until October. We recommend you then to unnail the trees, to take them up with the least injury possible to the roots; to cut away all deeply penetrating roots; to have tiles and brickbats rammed hard as a flooring beneath each tree; to plant them with the roots six inches from the surface; to keep that surface mulched in summer, and never to have it cropped or dug. The shoots of the Deodars will sprout again if the points only are frosted.

GOLDEN PIPPIN PIPS (*W. S. B.*)—It was a remarkable coincidence the five Convolvuluses coming up in the places where you inserted the five pips of the *Golden Pippin*, but most certainly there was no transmutation. We see reasons for believing that cultivation may induce one form of grass to pass into another form of grass, as an Ægilops into a Triticum; but there is no foundation for such an opinion as that cultivation can change a Pyrus into a Convolvulus. We knew an instance of three Orange pips being sown, and three Kidney Beans coming up in their places. Great was the wonderment thus occasioned; but it ultimately was confessed, by a provokingly jocular friend, that she had taken up the pips and substituted the Beans!

GYNERIUM ARGENTEUM (*J. M.*).—It succeeds well in a shaded place, and with an abundant supply of water. Mulch over its roots in summer. We cannot make out what catalogue you mean—is it Donn's *Hortus Cantabrigiensis?* If so, it is purchasable second-hand very cheaply.

NAMES OF PLANTS (*A. C. S.*).—Yours is *Orobus vernus.* (*W. W.*).—This, also, is *Orobus vernus.* It is perfectly hardy, and is somewhat altered in habit by being grown in a greenhouse. (*Carig Cathol*).—Your shrub is *Ribes petræum* or Rock Currant. The parasitic fungus on the Juniper we cannot identify. (*Evesham.*)—Your plant is *Aletris Capensis*, the waved-leaved Aletris, called also *Veltheimia viridifolia.* It is a native of the Cape of Good Hope.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.
JUNE 6th, 7th, and 8th. BATH AND WEST OF ENGLAND. At Dorchester. *Sec.*, J. Kingsbury, Esq., Hammet Street, Taunton. Entries close May 7.
JUNE 12th. ESSEX (Saffron Walden). *Sec.*, Mr. Robert Emson, Slough House, Halstead, Essex. Entries close June 1st.
JUNE 29th. DRIFFIELD. *Sec.*, Mr. R. Davison. Entries close June 23rd.
JUNE 29th and 30th, JULY 2nd and 3rd. SHEFFIELD. *Chairman*, Mr. Wilson Overend, Sheffield. Entries close June 14th.
JULY 18th and 19th. MERTHYR TYDVIL. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.
SEPTEMBER 25th. BRIDGNORTH. *Sec.*, Mr. Richard Taylor, Bridgnorth.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

PROFITS FROM EXHIBITING.

SHOWING opens other sources of profit than the sale of birds during the exhibition. Every fresh success is followed by scores of letters asking the price of one of the pens, or of some of the same breed, and if an amateur reluctantly declares he cannot afford the sum asked, he makes the best of it, and still looking for success, inquires the price of eggs. Few things are more profitable than the sale of eggs from a prize stock, and yet few will undertake the trouble, or expose themselves to the annoyance of the pursuit. There is no position in life without its trials, and egg-selling is one.

"Sold nine Spanish eggs to Mrs. S., March 1st."

"Charming woman, so fond of her children. Noticed that poultry amateurs are *very* nice people. Said she would inform me of the result."

Replied I should be delighted.

Copy of letter received March 27th:—

"Mrs. S. presents her compliments to Mr. P. is sorry to say only six of the eggs hatched. She will leave it to Mr. P. to send eggs for those that failed, or to return the money. Mrs. S. is *very* much disappointed at the result."

Write to say nothing to complain of. Purposely worded the letter in the most civil language.

Answer:—

"Thorn Lodge, Briars Lane, Bramble Heath.

"Mrs. S. has no wish to correspond with Mr. P. She confesses she thinks she has a right to complain at having paid 2*s.* 6d. each for *rotten* eggs. It may give Mr. P. pleasure to know all the chickens are dead, although they were well fed, and no expense spared."

Inquiry proved the poor chickens were playthings for the childen, and were taken up to bed with them.

"Sold eleven Dorking eggs, March 4th."

Received letter March 18th:—

"All the eggs you sold were addled."

"Time enough has not elapsed to prove it."

"Hen deserted eleventh day. Broke all the eggs. No sign of chicken in either. Don't care for the money, but do object to be taken advantage of."

"Sold nine Spanish eggs February 21st."

Letter received April 29th:—

"Sir,—I had my doubts, I am now certain, the chickens from your eggs are not pure. They *all have* white feathers, and you promised to sell me *black* Spanish. I am sorry I paid beforehand, but unless compensation be made, will at all events expose you."

Wrote to say Spanish chickens commonly, indeed mostly, had white feathers.

Heard in return I should be exposed in THE COTTAGE GARDENER next week.

"Mr. Trevelyan Courtenay, late B.C.S., is very desirous to possess some of Mr. A.'s celebrated Spanish fowls. He encloses postage stamps, and begs Mr. A. will send him four eggs. Mr. Trevelyan Courtenay, late B.C.S., wishes them to be selected with a view to the production of a cock and three pullets."

"The Bungalow, Nagpore Terrace, S.E.

"Miss Short wishes to know what allowance is made by Mr. A. if nine eggs are bought; also, whether he packs and delivers them gratuitously at the London station.

"Miss Short is reminded by her mother to ask, What guarantee Mr. A. gives with his eggs?"

"Mr. Frowne finds Mr. A. has been corresponding with his son about the sale of eggs and fowls. Mr. Frowne desires to inform Mr. A. his son is a boy, home from Eton for his holidays. He has no means of paying for any purchases of the sort."

"Lincoln's Inn.

"Messrs. Cox, Haines, & Phese are instructed to inform Mr. A. that Sir H. McGregor, who has ordered expensive poultry eggs of Mr. A., is a lunatic, and the place whence his letters are dated is an asylum. If Mr. A. has already sent any, he will be good enough to fetch them away without delay."

"Mr. Skemur has received Mr. A.'s application for the money for the eggs Mr. S. bought of Mr. A. last year. Mr. A. says it should have been paid before. He will allow Mr. S. to be the best judge of the proper time for discharging his accounts. Mr. A.'s account is 16*s.* The eggs hatched well. Mr. S. has two fine cocks to spare; he observes Mr. A. supplies such at £1 each. As Mr. S. wishes all tradespeople with whom he deals to have a liberal profit, he will allow these two birds at 12*s.* each to Mr. A.

"On receipt of his account receipted, and P.O. order for 8*s.*, he will forward them to Mr. A. As they are from two of Mr. A.'s eggs, of course they are first-rate birds."

GANDERS SOLD BY MISTAKE AS GEESE.

AT the Crystal Palace Summer Exhibition, I entered as a Gander and two Geese, Goslings aged sixteen weeks (when at that age it is quite impossible for any one to tell what they are). The pen was sold, and the purchaser, a month since, has informed me they have turned out three Ganders, and he now expects me to make him very large compensation. Am I legally bound to make him any? and if so, what do you think would be a fair amount? The purchase money was £3 3*s.*—A SUBSCRIBER.

[When you entered them as a Gander and two Geese, you were aware that you could not be certain as to their sexes; but without

any comment upon that, we will only observe that having thereby deceived the purchaser, you are bound, by the dictates of both law and equity, to give some recompense to the purchaser you deceived. Reverse your position, and suppose you had purchased three Ganders from a pen marked "a Gander and two Geese," would you not think yourself entitled to some recompense for the loss of a whole breeding season? We think you ought to take two of the Ganders back, and return the purchaser two guineas.

We would bring this case to the notice of Poultry Show Committees. They should offer their prizes for "Goslings" without any stipulations as to their sex, for then, as our correspondent observes, "it is impossible for any one to tell what they are."]

EGGS UNPRODUCTIVE—NUMBERS FOR A SITTING.

In reference to an article under this title in your No. 604, April 24th, in which a correspondent complains that he had only nine chickens from forty-seven eggs, I, a sufferer in the same way, although not to the same extent, whilst believing you to be very probably right in supposing that seven eggs under each hen would have been preferable to eleven, now take the liberty to show you how very widely "doctors differ" on this, as on almost every other subject.

There lies before me a quarto entitled "Maison Rustique, or the Countrie Farme," compiled (in French) 1582, by Charles Stevens and John Liebault, Doctors of Physicke, and translated into English (1600) by Richard Surflet, Practitioner in Physicke."

This curious old book is as general and comprehensive in its contents as King Solomon's works on Natural History are said to have been. On the subject of setting eggs, the rules and practice are given as follows, which will be, I think, what our cousin Jonathan calls "a wrinkle," to most of your poultry-keeping readers:—

"There must always be care had that they be odde; that is to say, in Januarie fifteene, in March nineteene, and after April one-and-twentie. The greatest part of the inhabitants of Lyons do admit of no other number than three-and-twentie."

In this "age of progress" we seem to be progressing crab-fashion as to poultry breeding.

Your comment on the above will much oblige many more, probably, than—An Old Reader.

[Doctors differ, always have differed, and always will differ upon every subject so long as human minds are gifted with diverse powers of judgment; but on the question, How many eggs should constitute a sitting? we cannot admit the editors of the "Maison Rustique" to be sufficiently learned to entitle them to the degree of Doctors. In a warm climate a greater number of eggs may be put under a hen than can reasonably be so placed in a cold climate; but in any climate to put twenty-three eggs under a hen that is not as large as a Turkey hen, is to insure that one-fourth of them shall be addled. We know that Mr. Baily, Mr. Hewitt, the Rev. Mr. Wingfield, and other first authorities on poultry, advocate the number of eggs for a sitting in winter to be very few—seven or nine at the most. In summer large hens, Dorkings and Cochins, for example, may have fifteen eggs placed under them. We once knew a Dorking hen "steal her nest," as it is termed. She sat herself in the thatch of an out-house overgrown with ivy. It was high summer, and from seventeen eggs she brought out sixteen chickens. There is an additional reason against large sittings in winter—namely, that even if many chickens are hatched, so in proportion is there the greater chance that they will not be reared. When they attain the size at which feathers on their bodies are forming, a time when they require more warmth, the hen cannot cover them, and the mortality arising from cold, with its preludes of cramped limbs and diarrhœa, warns every reflecting poultry breeder from adopting large sittings in winter.]

FEEDING SPANISH CHICKENS.

I have reared up my chickens this year in the following manner:—The hen is put on a grass plot under a coop, she has eleven Spanish chickens, and I give them an equal quantity of wheat, barley, grits, and hempseed, as a general food, with occasional feedings of bread crumbs, onion tops, barleymeal, and liver boiled until it crumbles. They are very fine and healthy, and are by far the largest in the neighbourhood at their age. Do you consider this good and proper food for chickens? As there have been so many complaints this year in The Cottage Gardener, about the mortality among chickens, I hope you will not consider me intruding on your space.—W. R. E.

[It is vain to argue against success. But we should not have given the chickens either barley, wheat, or liver. A little hempseed in cold weather is permissible. We should have given occasionally ground oats, and eggs boiled hard and chopped fine.]

NEW BOOKS.

FOWLS.*

This contains the carefully narrated experience of one thoroughly conversant with poultry, and we can safely state, that he has succeeded in what the following sentence says he attempted:—"I have endeavoured to condense all I have learned from the experience of many years, and to describe it in a few words, and as plainly as possible."

The poultry-house, feeding, fattening, preparing for exhibition, rearing chickens, keeping breeds separate, and the description of the various breeds, are all excellent and full of useful information. On one breed only do we join issue with Mr. Baily, and claim a verdict against him. Mr. Baily says of *Brahma Pootras*, "I at the outset advocated their claim to the honour of being a distinct breed, I now say, I have seen nothing to alter my opinion." We, on the contrary, from their very first appearance in public at the Metropolitan Exhibition in 1853, have never swerved from the opinion that they are either a cross with the Cochin-China, or at the best a variety of that breed.

Mr. Baily says, "In all adverse writers there is a total absence of argument, but a lavish use of the assertion that they are Cochins and nothing else." This charge we think not correct; but if it be correct, if we have never hitherto adduced an argument against the Brahma Pootra purity, we will at once endeavour to remove that default.

Now, the strongest evidence that can be produced of a newly imported pure breed is, to refer to the country whence the breed is said to come, and thence to bring some of the stock direct from its native place. Now, the writer of this lived four years in India, and during that time he never saw a Brahma Pootra fowl in any of the Bengal Bazaars. There were Bantams, Game fowls, Malays, and many mixtures, but no Brahma Pootras. We have inquired of those whose official duties made them conversant with the whole course of the Brahma Pootra River, and not one of those officials ever saw there such a fowl.

Let us go a step further; let us suppose that the name "Brahma Pootra," *lucerna a non lucendo*, was applied because the fowls never were there. Then where did they come from? They are so recent a discovery that there cannot be any difficulty in answering the query. Whoever imported any from India, or from China? We venture to assert that none ever were imported, except directly or indirectly, from America. And now let us see what information we can gather thence as to their origin.

Mr. Burnham in his "History of the Hen Fever," published at Boston in 1855, gives this narrative:—

"The variety of fowl itself was the *Grey Chittagong*, to which allusion has already been made, and the *first* samples of which I obtained from 'Asa Rugg' (Dr. Kerr), of Philadelphia, in 1850. Of this no one now entertains a doubt. They were the identical fowl, all over,—size, plumage and characteristics.

"But my friend the Doctor wanted to put forth something that would take better than his 'Plymouth Rocks;' and so he consulted me as to a name for a brace of *grey* fowls I saw in his yard. I always objected to the multiplying of titles; but he insisted, and finally entered them at our Fitchburg Dépôt Show as '*Burrampooters*,' all the way from India.

"These three fowls were bred from Asa Rugg's Grey Chittagong cock, with a yellow Shanghae hen, in Plymouth, Mass. They were an evident cross, all three of them having a *top-knot!* But, *n'importe*. They were then 'Burrampooters.'

"Subsequently, these fowls came to be called 'Burampootras,' 'Burram Putras,' 'Brama-pooters,' 'Brahmas,' 'Brama Puters,' 'Brama Poutras,' and at last 'Brahma Pootras.' In the meantime, they were advertised to be exhibited at various fairs in

* *Fowls:* a plain and familiar treatise on the principal breeds. Instructions for breeding and exhibition. *Third Edition*, revised, corrected, and enlarged. With which is reprinted *The Dorking Fowl:* its management and feeding for the table. *Fifth Edition.* By John Baily. London: Henningham and Hollis.

different parts of the country under the above changes of title, varied in certain instances as follows: 'Burma Porters,' Bahama Paduas,' 'Bohemia Prudas,' Bahama Pudras.' And, for these three *last* named, prizes were actually offered at a Maryland fair, in 1851!"

We fully admit the bad taste and vulgarity of that book, but these defects of style do not invalidate statements; and those statements have never been contradicted. Indeed, they are partly confirmed by "The Poultry Book" of Dr. Bennett, published at Boston in 1852, where he describes Mr. Rugg's "Grey Chittagongs," and mentions some of their varieties; but is quite silent as to "Brahma Pootras."

It will be seen from the above extract, that Mr. Burnham states that the American "Brahma Pootras" are a cross between a grey Chittagong cock and a yellow Shanghae hen. In 1853, two years before Mr. Burnham's book was published (*Cottage Gardener*, ix., 413), we stated our belief that they are a cross between the Malay and the Shanghae, or Cochin China; we so judged from the points exhibited by the birds, and in 1859, Mr. Walter Hugo, of Exeter, stated that he "produced some very dark grey Brahmas; one young stag with a pea-comb," by crossing between a Buff Cochin-China hen and a White Malay cock.—(*Ibid.*, xxi., 287.)

It has been asked, if parents producing chickens like themselves is not proof of purity of breed? To which we reply, that it is no such proof, either in the vegetable or animal kingdom. Many hybrid Geraniums produce their like from seed; and so do all our breeds of improved domestic animals. But if it were a proof, it fails in the case of the Brahma Pootras, for we have trustworthy reports of sittings of eggs bought from their most successful breeders producing such a varied progeny, as only two to be a match.

From all these circumstances we abide by our opinion, that the Brahma Pootra is a cross-bred fowl, nor shall we change from that opinion until it can be shown that they were brought from some country where they are an ordinary fowl.

In all that we have said, we have strictly refrained from expressing an opinion on the merits of this breed, for we have never kept them, and although many depreciate them, yet there are also many trustworthy poultry rearers who are loud in their praises of them. Among their applauders is Mr. Baily, and we again recommend his little volume not only for its ample details about this breed, but about all other varieties.

CLIMBERS ROUND AN AVIARY.

What would be the best kind of hardy climbers to plant round an aviary where there are Gold Pheasants, several kinds of Doves, and some of the wading birds? I have an unsightly bit of paling, which I wish to hide; and I want to know what plant would not be injurious to the birds if they pick it. I should like nothing better than the common sweet pea, but I have been told it would poison the birds. Is this the case?—Southern Cross.

[The sweet pea is just as wholesome as the garden pea or bean. Our fowls will not leave a pod on them that they can reach; and instead of making a hedge of it, we would need a hedge to keep our birds from destroying it. Privet is the simplest plant for you.]

FOWLS EATING FEATHERS.

Two hens last year suffered from a scarcity of feathers; their backs and the front of their necks being quite bare in some places. I have now but two birds unaffected in the same way, and as they all receive every attention and care, with good food—greens, meat, grit, broken chalk, &c.—and are kept scrupulously clean, I do not understand the cause. Their house, perhaps, is smaller than you would recommend, but a window is always open. They live in a wired enclosure, with as much space as can be spared. They do not appear ill or drooping, and I have eggs every day; but I could not continue to find pleasure in birds so disfigured (eleven out of thirteen).

I observe that, besides the bare places, the feathers appear to break off, even on the breast and wings—first the top, and then lower, so that only the fluff remains. The cock's back possesses little more than this substitute for his once glossy feathers; and my pretty Spangled Hamburghs are losing the pattern, which is so ornamental.

I thought your remedies for baldness did a little good; but then so many more became affected as to induce me to ask if you could kindly assist me by your counsel, and inform me of the cause, as it cannot be unwholesome or want of green food in the present instance.

I believe they are in the habit of eating the broken feathers.—Mrs. Dorking.

[Where fowls take to eating feathers, or picking each other's flesh, it is a sure sign they are in a very pampered or diseased state. If you feed on meat, that is the cause, and no sign could be given to convince of over-feeding more certain than the fact they eat their feathers. Your fowls are heated and feverish. Purge them well with castor oil, a table-spoonful at a time; give them lettuce to eat; feed sparingly, and let the food be ground oats. Let them have dust in their house, and rub the bare spots with compound sulphur ointment. They should have no food by them at any time, and be sparingly served at each meal. They do not eat each other or their feathers because they are hungry, but because they are suffering from a vitiated appetite.]

CRAMLINGTON EXHIBITION OF POULTRY, May 5th.

(*From a Correspondent.*)

This Show (the fourth), was one of the best that has been held there. It was attended throughout the day by a large concourse of people, dancing and joining in rural games. The funds, we understand, are good for another year's Show, which is expected to be a first-class one. The prizes are £1 and 10*s.* each class, which the Committee hope to enlarge another year.

As a proof of the superior quality of the birds exhibited, we may notice in the Golden-spangled Hamburgh class were exhibited the identical birds, the property of Mr. H. Adams, of Beverley, Yorks, that gained the first prize at the Crystal Palace Show, but which only gained the second prize at this Exhibition. The first prize was carried off by Mr. Fairless, of Wideopen, near Newcastle-on-Tyne. The Game class was excellent. The first-prize bird was owned by Mr. Adams; the second by Mr. E. Akroyd, of Darlington. The other pens were equal, of the same merit, belonging to Mr. Fairless and J. Bell, &c.; but the birds had yellow legs, which seem to be getting out of fashion, as it is very seldom Judges notice them when willow legs are shown. The Spanish class was very good; as were the Dorkings, Spangled, and Pencilled Hamburghs.

The following is a list of the successful exhibitors:—

Cochin-China.—First and Second, J. Shorthose, Newcastle-on-Tyne.

Spanish.—First, L. Hope, New Hartley. Second, J. Oliver, North-Seaton Colliery.

Dorkings.—First and Second, J. Graham, Jesmond.

Game (Black-breasted).—First, H. Adams, Beverley. Second, E. Akroyd, Darlington.

Game (White and Piles).—First, H. Adams, Beverley. Second, P. Wilkinson, Bedlington.

Hamburghs (Golden-spangled).—First, J. Fairless, Wideopen. Second, H. Adams, Beverley.

Hamburghs (Golden-pencilled).—First, J. Shorthose, Newcastle. Second, J. Armstrong, Wideopen.

Hamburghs (Silver-spangled).—First, Mrs. Fenwick, Seaton Delaval. Second, G. B. Foster, Couper Lodge.

Hamburghs (Silver-pencilled).—First, R. Tulip, Wickham Street, Sunderland. Second, H. Storey, Arcot Hall, Newcastle.

Polands (Black with White Crests).—First, T. Leonard, Fulwell.

Polands (White).—First, J. Simm, West Cramlington. Second, T. Leonard, Fulwell.

Polands (Golden).—First, F. Renwick, Seaton Burn. Second, J. Shorthose, Newcastle.

Any other Breed.—First, J. Shorthose (Silver Polands). Second, F. Thompson, Wideopen.

Bantams (Gold-laced).—First, J. B. Foster, Couper Lodge.

Bantams (any other variety).—Prize, W. Poad, Seghill.

Geese.—First, J. Joisce, Crofter Mills. Second J. Wood, Berwick Hill.

Ducks (Aylesbury).—First, H. S. Stoney, Arcot Hall, Newcastle. Second, T. Bell, Cramlington.

Ducks (Rouen).—First, T. Bell, Cramlington. Second, P. Wilkinson, Bedlington.

Ducks (Muscovy).—Second, Miss Robinson, Sunningside, Ponteland.

Ducks (any other variety).—Prize, T. Sanderson, Seaton.

Turkeys.—Prize, Miss Laws, Smallburn, Ponteland.

Cottagers.—Rent not more than £5, who exhibit the best of any of the above classes. The cottagers exhibited in all the classes, and some splendid birds competed.

The *Pigeons* were a good class of many kinds; and so were the *Rabbits*. In all 152 pens were exhibited, and most of them second to none in quality.

A PECULIAR VARIETY OF THE HONEY BEE.

Nothing is more puzzling and perplexing to the ordinary student of Nature, and often even to the scientific inquirer and renowned naturalist, than to account for the origin of the different species and variety of animal and vegetable life which now obtain throughout the world. Man himself, the highest in the scale of existence, has been subjected, apparently, to the same natural laws and influences which in all have produced such marked changes and characteristic differences.

It is not my intention to enter into any discussion of these laws and influences, and to say how much may be ascribed to climate, food, education, cultivation, &c.; but this we all know, that Nature delights in variety, and sports in eccentricities.

It has, accordingly, often occurred to me as a strange circumstance that in this country we should only have one species of honey bee; and that in all Europe only two species are met with —viz., the *Apis mellifica*, which is cultivated in the British Islands, and which has extended itself over the greater part of the European continent, and the *Apis Ligustica*, or Ligurian bee, which is cultivated with success in Italy. In all places where the *Apis mellifica* is cultivated—whether in this country or among the extensive wastes and prairies of North America, where it has been successfully naturalised, it appears to preserve its complete identity, and to suffer no change in its physical characters. A new variety, however, I think, has at last been discovered, and it has fallen to my lot to announce the fact, which is the object of the present communication. This variety is distinguished by a peculiar grey or light colour; and the stock, which I obtained in 1857, is the only instance I have known where the difference in the appearances of the bee assumes a decided characteristic. Of its antecedents, unfortunately, I know nothing, and am unable to trace its history beyond the period of its coming into my possession.

In the autumn of that year (1857), I had a colony of bees from a cottager a few miles distant from Edinburgh, which he dislodged from a hive previously to depriving it of its stores. I put this colony into a Huber leaf-hive, which had perished during the early spring. I at once noticed a peculiarity in the bee, which consists chiefly, as I have said, in the colour. The hairs covering both the worker and the queen being much more profuse and light-coloured than in the ordinary bee, especially those which cover the head and thorax. The queen, moreover, is large, the characteristics before stated being more decidedly conspicuous in her case; while the amount of golden colour which generally distinguishes the sovereign bee, is also more marked and brilliant.

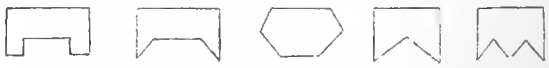
I raised artificial queens from this stock, and find that the distinction in the offspring is kept up and sufficiently marked to be easily identified. To a common observer the bee may not, at first sight, appear so very distinctive in its character; but so well do I know it, that I can even identify it in the field and among a crowd of other bees.

I am not to attempt a solution as to the cause of this phenomenon, whether it originated in a freak of Nature, or, more probably, from a different species of bee having been imported at some distant day, which, by subsequent amalgamation or intercourse with the ordinary variety, may have become so far deteriorated and altered in its character as to bear that mongrel appearance which it now exhibits.

To the naturalist, whose researches have been directed to the instinct and economy of the bee, the communication now made must necessarily be fraught with interest; and I conceive that the phenomenon, for the first time exhibited, of a peculiar variety of the *Apis mellifica* is so important as to induce me to give it publicity in the columns of The Cottage Gardener, both for the information of apiarians and the lovers of natural science.—J. Lowe, *Edinburgh*.

COMB-BARS IN HIVES.

I was pleased, in your publication of the 1st inst., to observe that your correspondent "A Devonshire Bee-keeper," had turned his attention to the subject of an improved comb-bar; for having frequently witnessed the strange vagaries of the bees in laying the foundations of a comb, I had been led to think that we have not yet acquired a knowledge of its proper formation according to some defined rule, to be discovered only by experiment. At present it is mere accident whether the comb is or is not placed in a central right line upon the bar; for both the guide and a line of wax are often set at defiance. Hitherto the form of the bar has been a flat surface, usually one inch and one-eighth wide, and half an inch thick. The "Devonshire Bee-keeper" proposes a deviation by cutting the underneath side of the bar, so as partly to resemble in form the letter **T**. Allow me to suggest to him the desirableness of trying other variations of pattern; for, as he observes, an angular edge appears to be liked as a foundation rather than a plane. Having arrived at this knowledge, why not find out the proper angle, and the mode of forming the bar accordingly? Suppose, then, we cut the underneath side of the bar variously as to pattern, allowing the bees to make their choice; and I submit the following forms, in addition to that proposed by your correspondent; the bar on the upper side remaining as usual, but in thickness, perhaps, it would be well to increase it a trifle. Now there would be no difficulty



in trying more than one variety of pattern in the same hive; and if wax is thought essential, it should be confined to the central portion of the bar. Guide-combs, of course, would be undesirable in making the experiment; and I am inclined to the opinion that the proper angle once discovered, no other guidance would be needed, and much trouble avoided. There need be little pains bestowed in good workmanship, as the bees prefer a rough surface to a smooth one in attaching their combs.—T.

SUBSTITUTES FOR POLLEN.

Your correspondent "A. T.," at page 94, confirms the universal complaint that the present spring, from its extreme backwardness, has not allowed the means of collecting pollen by the bees at the very time when a supply is essential to their welfare. A reference to two communications from me in your publications of 6th and 13th March will show a recommendation to provide a substitute for pollen, which has been found to answer in Germany and elsewhere by placing within, or near, an apiary a portion of the flour of rye or wheat. So far as all the experiments that have recently come within my own knowledge extend, this practice has been attended with success, the bees gladly availing themselves of it, no doubt for feeding the young. It would confer a public benefit if such of your correspondents as have adopted the plan would state the result.—An Old Apiarian.

OUR LETTER BOX.

Poultry for a Small Space (*A Town Poultry Fancier*).—If you require them chiefly for eggs, none will suit you better than the Golden Hamburghs, either Spangled or Pencilled.

Powters Crushing their Young (*F. T. W.*).—Powters which kill their young ones by sitting too heavily on them, should have their eggs reared by other and better nurses. They may have a pair of eggs to sit on, and at the seventeenth day should be provided with a young one about a week old to feed off their soft meat, from which cause they are now, probably, suffering. I am not able to state a remedy, but think a tea-spoonful of castor oil might be beneficial. I usually administer it by means of a large quill, which I fill by sucking out the air, and then putting the end down the Pigeon's throat blow out the oil.—B. P. B.

Damage by Sewage Contractors (*A Young Apiarian*).—We presume that the contractors entered your garden to lay the main drain under the provision of some Act of Parliament, and, if so, that Act will contain clauses showing how, and under what circumstances, you can claim compensation. You had better consult some legal friend upon the point. If you can prove damage, we have no doubt you have a remedy.

LONDON MARKETS.—May 14.

POULTRY.

There is still a dearth of good poultry; and although the demand is not great, yet prices are not only maintained, but in some instances have rather advanced.

Each—	s.	d.		s.	d.	Each—	s.	d.		s.	d.
Large Fowls	7	0	to	8	0	Turkeys	0	0	to	0	0
Smaller Fowls	5	6	,,	6	6	Guinea Fowls	3	0	,,	3	6
Chickens	4	0	,,	5	0	Pigeons	0	8	,,	0	9
Geese	0	0	,,	0	0	Hares	0	0	,,	0	0
Goslings	6	0	,,	6	6	Leverets	3	6	,,	4	0
Ducks	0	0	,,	0	0	Rabbits	1	4	,,	1	5
Ducklings	3	6	,,	4	0	Wild ditto	0	8	,,	0	9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	MAY 22—28, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
22	Tu	Parietaria officinalis.	30.048—30.014	61—36	E.	—	IV	53 af 7	22 10	2	3 35	143
23	W	Buffonia tenuifolia.	30.039—29.938	68—40	N.E.	—	59 3	54 7	6 11	3	3 30	144
24	Th	Queen Victoria born, 1819.	29.949—29.859	70—35	N.E.	—	58 3	55 7	40 11	4	3 25	145
25	F	Princess Helena born, 1846.	29.871—29.841	73—38	N.	—	57 3	57 7	morn.	5	3 19	146
26	S	Myosotis palustris.	29.916—29.890	72—38	N.E.	—	56 3	58 7	4 0	6	3 13	147
27	Sun	Whit Sunday. King of Hanover	29.831—29.753	74—46	N.E.	—	55 3	59 7	23 0	7	3 6	148
28	M	Whit Monday. [born, 1819.	29.925—29.667	69—52	N.E.	—	54 3	VIII	40 0	8	2 59	149

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 67° and 44.6° respectively. The greatest heat, 91°, occurred on the 28th, in 1847; and the lowest cold, 29°, on the 25th, in 1839. During the period 133 days were fine, and on 98 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Anything left undone should now be brought up, as the late rains have been favourable for transplanting, &c. *Beet*, thin the plants to a foot apart while they are small; fill up vacancies with those that are drawn out. If the first sowing failed, it is not yet too late to sow another. *Broccoli*, make another sowing of the early and late sorts, to come into use in succession from October to April. *Capsicum*, plant out on a warm, rich border; to be watered in dry weather during the season. *Celery*, prepare trenches for the early crop by throwing out the soil from fifteen to eighteen inches deep, and as it is but seldom allowed to stand until it attains full size, two feet and a half between the trenches will be sufficient. Dig into the trenches six inches of old hotbed or cowdung, which, for Celery, is preferable to that which is rank and new; to be removed carefully when the plants are fit, making a hole for the ball with a garden trowel, choosing a dull day; to be well watered when planted, and shaded for a time in very bright weather. *Endive*, sow a little seed for an early crop. *Leeks*, make a sowing, to plant out for winter use. *Strawberries*, lay some spent hops or clean straw about them, to prevent the fruit from getting splashed with dirt by heavy rains.

FLOWER GARDEN.

As the weather is now all that could be desired for bedding-out purposes, no time should be lost in turning out Calceolarias, Geraniums, Verbenas, and all other such half-hardy plants into their summer quarters. All shoots that are long enough to be injured by being blown about by the wind to be pegged down immediately on planting out, and a good watering, if the weather is dry, to be given to the beds to settle the soil about their roots. The young growing shoots of tall herbaceous plants—such as Delphiniums, Lysimachias, Pæonies, Phloxes, &c.—to be thinned out and properly staked. Roll, mow, and clip the edges of grass lawns. Remove all decayed leaves and flower-stems. Turn gravel walks infested with moss. Plant out Dahlias into the flower-borders; fill up the holes with some good soil, and finish by staking each plant and mulching the ground around it. Continue to destroy insects on Roses. As green fly is frequently troublesome at this season, a good washing with the garden-engine on two or three successive evenings will greatly assist in getting rid of them. Evergreen shrubs recently transplanted to be watered occasionally at the roots and frequently overhead in dry weather. Plant out in a rich soil a good supply of Asters and Stocks for the autumn. Make another sowing of Mignonette in pots for the rooms, or for filling window-boxes. Tie up Pinks, and remove superfluous shoots. Part Polyanthuses, planting them in a very shady, cool place.

FRUIT GARDEN.

As the late change in the condition of the atmosphere is highly favourable to the development of the wood, frequent attention will be necessary in stopping; for if an unchecked growth is permitted, very useful eyes will remain dormant, and, probably, well-situated shoots robbed by an undue extension of young terminal wood.

STOVE.

A humid atmosphere to be sustained, with free ventilation on mild days. *Climbers* to be attended to frequently. Achimenes, when grown in large pans, produce a fine effect. The plants intended for autumn blooming to be shifted frequently. Syringe and shut up early on the afternoons of bright days, and abstain from the use of artificial heat as much as possible.

GREENHOUSE AND CONSERVATORY.

Encourage the growth of Azaleas intended for early blooming by watering them freely, especially when pot-bound. Unequal or over-luxuriant shoots to be stopped with the finger and thumb, to render them compact. The New Holland twiners, when done flowering, to have their shoots well trimmed in before growth commences, thinning the weakly and other branches where necessary, and always endeavour to have plenty of young wood towards the bottom. Fuchsias, when placed in a cool, moist, shady house or pit, will grow much more freely and satisfactorily than in a high temperature.

PITS AND FRAMES.

Those containing cuttings recently potted off to be kept close until they have made fresh roots, and to be shaded during very bright sunshine. Tender annuals require some bottom heat, but must at the same time have a liberal supply of air to keep them from drawing; they should also be placed near the glass. Frames for striking cuttings to have a northern aspect through the summer months. W. Keane.

WELLINGTON ROAD NURSERY, ST. JOHN'S WOOD, LONDON.

MESSRS. E. G. HENDERSON AND SON.

The exhibition of early spring Tulips here this season is the best of the kind that has yet been attempted in this country; and when the Tulip mania was at its height, the whole force of the Dutch gardens could not have made one-tenth of the blaze that is now to be seen in the Wellington Road Nursery, because there never was one-tenth of the diversity of colours amongst florists' Tulips as there is now in the new spring bedding kinds. The best bed of florists' Tulips I ever saw was at Lower Boughton, on the west side of Manchester, in May, 1831. It cost the owner £700; and the exhibition of florists' Tulips that season in Manchester was, at the least, five times larger than any Tulip show that was held in London in my day. I can see them all now in my mind's eye. Mr. John Mowbry, who then superintended the Botanic Garden for his elder brother, took me round to see them all. The best comparison I can make between the finest displays of the florists of that day and the flower-gardeners with their Tulips as seen at this exhibition, is to call the former

races crows and jays, magpies and jackdaws, and the latter Australian birds of a feather, and more particularly the parrot races of the new continent. Indeed, for brilliancy and effect, no right comparison can be made between the old Tulips and the new race.

Here are thirty-two beds of these Tulips in succession. Each bed is seventy-five feet long, and contains ten rows of Tulips, and 125 "roots" in each row; but say one hundred in a row, and that makes 32,000. Then there are eight beds of offset bulbs in quantities, or 8000 more, in all 40,000; but a close numbering of them would reach up to 48,000 or 50,000 in all. Some of the kinds bloom with two, three, or four blooms to a bulb; and putting the whole together, the number of flowers is incredible: then the effect of the whole no one can conceive by merely reading about it. All these beds have the ends to the public road, and every one who passes may see them all at one glance over a low boundary-wall. Her Majesty and suite often ride past in the afternoon, and pull up on purpose to view the splendid sight, in which there are more crows, queens, kings, and emperors, than ever met together out of Holland.

There is also an experimental narrow bed of 103 yards running down at the ends of the large beds, and parallel with the public road. In this bed are four rows, and ten bulbs of each kind of Tulip are planted all the way down in succession—or hard upon four hundred kinds, including single, double, and distinct species, and only one florist's Tulip in the whole lot—a fine yellow Tulip of some English grower, there on trial of course. That is the time and place for the young ideas to study and learn the best ways of planting flower gardens on the principles of all known styles. A professor could teach more real useful knowledge there in a month, or five weeks, than another could possibly do in five years, hammering from old books and fresh-gathered specimens of any known flora under the sun.

The following selections will be the next best help to learn to plant according to colours, and the best kinds to buy by the dozen, or score, or hundred, for spring bedding. But there is "only one way, and one way only," to have them in perfection, without interfering with the former crop in the same beds or the later crop which is to succeed the spring Tulips; and that way is to have all the bedding Tulips in the ground by the 20th of September in each year—never later by one day, but as much earlier as you choose back to the very middle of August. Put down each kind by itself on a border, and merely cover it, just as one might put down so many kinds of Potatoes to sprout before planting them. The secret of having early Potatoes is to sprout early kinds earlier than planting-out time; and it is precisely the same with Tulips and all other bulbs that are useful in bedding. All spring bulbs should be sprouted in the autumn as early as possible, and any time before Christmas will do to transplant them from the sprouting to the flowering-beds; so that a late frost, and consequently a late taking up of bedding in October, is, or need not be, the slightest hindrance to growing bulbs of all kinds in the regular flower-beds. And not only that, but a better change; for by this plan the beds for Geraniums, Verbenas, Petunias, Calceolarias, and all the rest of them, must be made up yearly at the end of October and through November, first for these bulbs, and to be ready in May to plant all the young stock of summer bedders between the rows of bulbs, if the bulbs are not then ripe enough to be removed. May is a busy time in gardening, but November is not so; you are waiting till all the leaves are down before you "clear up" for next season.

If we begin with Scarlets. The *Scarlet Van Thol* is the best bedder of that colour. The next shade is *Vermilion Brilliant*, the favourite bedder at the Experimental. Next shade *Rembrandt*. The next *Feu d'Anvers* and *La Belle Alliance*, fine kinds, or tints, nearest to scarlet in Tulips, and not one of them as good as *Vermilion Brilliant*.

Pure Crimsons, as represented in Tulips. *Cramoise Fidéle*, crimson scarlet; *Couronne Pourpre*, blood crimson; *Royal Queen*, real crimson; *Couleur Cramoise*, crimson scarlet; and *Sunbeam*, crimson scarlet and golden bottom. These ten comprise the very cream of the highest and richest tints, and we break with the clearest whites for strongest contrast. *White Van Thol, Reine Blanche, Queen Victoria, Alba Regalis, Luna*, and *White Pottebakker;* the latter is the tallest white and for centre of beds. *Queen Victoria* is the next size and a clearer white.

Bronze-red and Crimson, a rich effective tint. *La Majesteuse, Holofernes*, and *Artemis*.

Bright Rose or Cherry on white ground. *Cerise non Rectifié, Drapeau de Rouge* (fine), *Couleur Ponceau* (ditto), and *Sultana* (a gay thing).

Deep Rose or Salmon, a scarce shade in Tulips. *Monument* being the only real best of it here.

Self or pure Yellow. *Yellow Pottebakker, Golden Prince, Yellow Van Thol*, and *Canary Bird*, all very rich and splendid in single beds of each. *Golden Prince* being my own favourite yellow, but all the rest are just as good.

Buff-yellow, another rare tint, and has the very same effect as a few plants of light-brown Calceolarias would make mixed at equal distances in a bed of yellow Calceolarias. *Thos. Moore* is the only really true of this tint.

White ground with deep Rose or Cherry-feathered, a very gay and telling class. *Leander, Duchesse de Clairmond*, and *Rose* and *Silver Claremonts*, both these *Claremonts* are very showy.

Yellow with Bronze-red stripes. *Grand Duc* and *Hof Van Brabant*.

Bronze-red with Yellow line on the top or margin. *Drusvilla* and *Commandant*, two very effective kinds.

Dwarf Bronzed-yellow streaked with Rose, blooming with many flowers like a Crocus. *Bizard, Verdict*, and *Souvenir*.

Bronze-red or Crimson, with a broad Yellow belt or margin, a showy class. *Archduc d'Autriche, Duc de Chartres, Duc Vorhelm*, and *Prince of Orange*.

White, feathered with Cerise or Crimson Rose. *Tendre, Cour de France*, and *Köning Assingaris*.

Orange-shaded Scarlet. *Couleur de Cardinale*.

Puce or dark Purple, with Lilac or White margin. *Archus* or *Carman*, and *Lac Van Ryn*.

White with Cherry or Crimson flakes. *Grootmeester* and *Standard Royal*, alias *Royal Standard*, and as a single bed by itself, is the showiest kind of all the Tulips. *Golden Standard* is nearly as good, and both were the best forcing Tulips twenty-five years back.

White flushed and belted with light Rose, or the Meg Merrelies of Tulips, a giddy gay thing certainly, name *Rose Rinante*.

Violet-crimson Self. *Duc de Luxembourg*.

Violet-purple with White marginal lines. *Violette Hâtive* and *Belle Laura*.

Pure Purple or Self Purple, *Moliere;* and such an enumeration of bests in all the classes of bedding Tulips, could never have been made in England previous to 1860.

To get at the top and bottom of these classes, I had to enlist the best head and eyes in London to assist me, Mr. W. Wood, the great writer on the scientific culture of propagation and training of plants; the author of the one-shift system, and of many other shifts, great, small, and middling. We were certainly birds of a feather that day. We had it all over again, like the twa dogs in Burn's Poems; and Lord John Russell in his place in Parliament, has recently declared his opinion, that there was more philosophy in these twa dogs than in all the opposition dogs put together in one pack; but the rising generation of bedding-out planters must decide the value and extent of our philosophy in this matter.

The double Tulips are later than the above, which are all single. *Tournesol* and *Rex Rubrorum* are the best known of them, but others are just as good; and as one

may have a variety as well as colour at the same price, selections are far more thrifty to have than many of one or two kinds. These kinds grow just as well in England, from year to year, as they do in Holland, and the offsets of all of them should be kept, and a few more kinds brought in every year. The next best double ones are *La Candeur*, which is much used at the Crystal Palace, *Gloria Solis*, *Mariage de ma Fille*, *Lord Wellington*, *Conqueror*, and *Yellow Rose*, and a few others.

By-the-by, speaking of the Crystal Palace Tulips, except these double ones, the rest are really not worth the trouble of planting them. They are all of them of the flimsiest of the florists' strain, without one single redeeming point of the older strains; and people who take up their notions of spring-bedding Tulips from what they see at Sydenham, would not be very sanguine in recommending this branch of gardening.

The next thing that struck me at the Wellington Road Nursery was the immediate adoption as soon as published of Mr. Standish's tiffany-houses, for the protection and growth of half-hardy and nearly hardy plants of all kinds. Mr. Standish has done a vast deal of good in trying and making known his experiments on this cheap and excellent mode of protection. His article on *Myosotidium nobile*, at page 104, will also be of the greatest service. One might lose half a fortune before discovering the proper treatment of that noble Forget-me-not. It is, indeed, one of the very first for specimen plants in the country. He sent two noble specimens of it to the meeting of the Floral Committee of the Horticultural Society, and the whole of the members were unanimous in their special recommendation of it; and if you believe me, I was astonished to meet with such a host of practical experience in the composition of that Committee. They did not black-ball me at the voting, and I shall be proud to meet and sit with such practical and independent spirits, who, by-and-by, when they get sufficient room to spread out their feathers, must be considered the right wing of the Horticultural Society, if not the main pinions of British progress in the floral world.

But about these tiffany-houses. The first experiment at this Nursery is 47 feet long, 24 feet wide, and 8 feet high in the centre, span-roofed, of course, and 4 feet high at the sides. The posts for the side and end-walls are five or six feet apart, with a board nailed *against* them at top and bottom, the bottom-board resting on a single row of bricks placed on the surface. The ridge is supported by two posts only, the rafters rest on the side-posts and on the ridge, and then the whole is covered with tiffany, as Mr. Standish directs, and masters and men are equally well pleased with the result. I think the carpenter of the firm and two helps put up that house in one day; at all events this is the right structure to harden off the bedding plants of the three kingdoms from the 1st of April, and it could be put up over the fruit against the walls of the kitchen garden, to save the bloom at the same time, and thus kill two birds with one stone. With the sides uncovered after bedding out, all ordinary plants will grow under it better than under glass uncovered, and it would be the best place to cross all kinds of bedding plants, and particularly Geraniums.

But I have so many things on hand just now, that unless I put some of them on the shelf I must part them; and as it would not look just the thing not to tell of our Floral Committee from the first start, I shall part the rest of the notes on the Nursery till next week, and give my maiden speech on this right wing of the Horticultural Society. There was a strong muster of members, probably to see how the young lions, just caught, would feed and look in a poking little room not big enough to grow Cucumbers for a respectable family. Mr. Kinghorn, the great cross-breeder, and Mr. Salter, the florist, were amongst the fresh blood; and if we can give as much confidence to the Britishers as Mr. Salter's long experience abroad is sure to give on the other side of the water, no matter how soon we shall be in the new rooms and offices at Kensington Gore, for depend upon it we shall draw both sides after us there by degrees. Hitherto a large number of the country party thought this Floral Committee was altogether for florists' flowers and new plants from abroad, and, therefore, took very little interest in it. Another party often regretted, in my hearing, that "even should new plants and new seedlings be judged by such a Committee, they will be judged by the rules of the florist: therefore, no flower-garden plant, or shrubbery plant, or rock plant, or block plant, or water, or marsh, or wilderness plant will have any chance there." No such thing. The Judges or the members of Committee are selected as they were of old at Chiswick, where fifteen Judges, for the fifteen years that I was on the circuit, were divided into five sections, each section to judge the plants which that section was known to know best. Once, indeed, when the Doctor was pushed for men, he put me, or asked me, to act with Mr. Frost, of Dropmore, and Mr. Wells, of Redleaf, on the florists' productions; and I told him, in the presence of the twelve Judges, that he might just as well send me down to Birmingham with that very stout man in the next tent—Ibrahim Pacha, from Egypt; for we heard he was going there that afternoon, and there it ended; and that is just how we shall do it at the Floral Committee. If his conscience tells one of us that he is not a fair Judge on that plant or that collection of plants, he will hold his tongue, say nought, but sit, hear, and learn from what the knowing ones are saying, just as one of you might; and when it comes to the show of hands he will push his into his pocket, and be as if it had not been. Therefore, everybody, or every set of bodies all over the three kingdoms, will have fair judgment and sound practical knowledge, without a particle of prejudice bestowed upon their seedlings, or newly-introduced plants, and upon high cultivation. A plant, or two, or ten plants, no matter how common, if grown above the common run at the Shows, will be sure to get our prizes and highest commendations. And let me tell you, for I know what it will come to, that if I were a young gardener now with my present experience I would rather choose so many "Commendations" from this Floral Committee to back my character for getting into a better situation than the best written character from the first nobles in England. Recollect, ordinary plants must be better than we see them at the London Shows before they will be thus commended, otherwise we should come in competition with the ordinary exhibitions. But the great field for the trial of strength in growth is in the old and forgotten plants of the last half century. Hundreds of as good plants as one sees now-a-days have been lost, or let out of mind, since I remember, and some of the finest plants in the world have never yet been seen at a Show. Did you ever see *Luculia gratissima*, a large bush in a No. 6-pot, with forty-five heads of bloom as large as Hydrangea heads, and every flower as sweet and sweeter than a Violet, with the blush of *pudibundus* on them? You did not—at a Show, at all events; but the thing was done, and can be yet performed. Just do it, and get a first-rate prize and character for doing it next Christmas; or, if you like it better, choose any of the autumn or spring-flowering plants, and retard the one or force the other, so as to be in to decorate Christmas festivities, and my word for it, you will not go without your reward; and as to seedlings, they will be sure of being judged by the rules for the classes they represent, and by none other.

On that occasion the best things before us were two specimens of the Antarctic Forget-me-not, from Mr. Standish, with five, six, or seven spikes of bloom well up above the foliage, something after the looks of a Statice at a Show; a collection of mixed plants from the Wellington Road Nursery; of mixed Auriculas from Mr. Turner, of Slough; of mixed Verbenas from Mr. Kings.

bury; of new and fine-leaved plants from M. Linden, of Brussels, and Messrs. Veitch, Kinghorn, and some others; and the way the prizes went is in the advertisement of that Meeting, for I took no notes of them at the time. Mr. Kinghorn's Azalea was most beautiful, and M. Linden's *Campylobotrys regalis* is a gem, the best of his fine-leaved plants. His Theophrastia had not the smallest resemblance to any one of that family, and probably there may be some mistake, unless M. Linden has a dried specimen to prove the name. D. Beaton.

BLOOM FALLING OFF FROM TREES IN AN ORCHARD-HOUSE.

I have this season planted an orchard-house 20 feet by 10 feet, with Apples, Cherries, Peaches, and Nectarines. I have turned them out of their pots into the borders, and they all bloomed beautifully: but now the bloom has all fallen off with no fruit. Can you inform me the cause of it? My trees were rather small, in 16-size pots, but they are now making good growth. Can you inform me what is meant by the summer-pinching-system in preference to disbudding?—A Constant Reader.

[Your trees, in all probability, had not been long enough established in pots, or the roots had been too much disturbed in transplanting them to the borders. If properly managed they will, no doubt, bear next year. The summer pinching simply consists in pinching back every shoot to three leaves, and when it pushes again, as soon as it makes three leaves more, pinch it again. Even if you adopt this system your trees in the border will soon out-grow your house, unless you annually take them up and root-prune them. Growing in pots acts like a perpetual root-pruning.]

WASTE OF HEAT IN GLASS STRUCTURES.

There was a meeting the other day of the Schoolmasters Social Science Association, when Lord Brougham and other speakers enlarged on the importance of the subject, a view in which we fully concur. Mr. Morris, an architect, then sketched "a house for the suburbs," socially and architecturally, and we extract his remarks concerning the greenhouse, or according to his punning antithesis, "the unconservative principles of modern conservatories."

"Instead of any rational attempt being usually made to economise solar heat, and retain by such uncostly means an equable temperature, a perfect *frigidarium* is usually first set up—all the sides and all the roof of glass—and then a wasteful expenditure of fuel and attention is imposed to correct so thoughtless a proceeding.

"Loudon has shown that every square foot of glass cools a cubic foot and a quarter of enclosed atmosphere per minute, as many degrees as the inner temperature exceeds that of the outer air; so that, assuming the heat inside to be 66°, and the outside 44°, every 100 superficial feet of glazing would depress 125 cubic feet of air, 22° every minute, and the largest body of atmosphere would thus be rapidly reduced to the external level but for the warmth artificially generated within.

"The plea upon which the better and more substantial principle of construction observed in the plant-houses of the last century has been departed from, seems to be that of obtaining more light, and it has been facilitated by the low price of glass; but it is, in fact, a groundless argument, for light is so extremely diffusive, that, as illustrated in the Pantheon, at Rome, a single foot of glass will illuminate, in an agreeable manner, 3000 cubic feet of space.

"With this fact before us, we may safely have walls on the north and east sides; and if the roof be also of opaque materials, to act as a reflector on those quarters, and transparent only on the south and west, the heat acquired during the day will be sufficient to exclude frost in the night, except in seasons of intense cold; and the contemptible flimsiness of appearance, now so general in these structures, will be obviated."

[There is much that is suggestive in Mr. Morris's remarks upon the waste of heat from our glass structures; and there is no doubt that their north and east sides might be of brick or or other substances less conducting and radiating of heat than glass; but we quite dissent from Mr. Morris's suggestion about opaque roofs. No amount of side-light will ever compensate plants for depriving them of the more intense light given by the nearer-to-perpendicular rays admitted through the roof during the mid-day hours. Very few of our tender plants would ripen their wood under the overshadowing of an opaque roof.—Eds. C. G.]

SOME POINTS IN VINE CULTURE.

"I have two vineries heated by hot water. There are two Vines up each rafter, and the spurs on them are nearly two feet long, and each of the Vines has a piece of young wood trained on the outside wires. About four feet of the young wood are two years old, and four feet last year's wood. Last year I began to force the first house the beginning or first week of March, and I had about eighteen or twenty bunches up each rafter; but some of them were very small at the bottom of the Vines. I left all the bunches on that showed, and several of the bunches did not colour as they ought. The other house I keep back as long as I can. The Vines are out of the house; yet they began to break in May last year, and the Grapes coloured well, but the bunches were small. There was about the same number of bunches as in the first house. Most of the Vines are *Black Hamburghs*, except a few white ones that are planted by the side of the *Hamburghs*. I don't know the name of them, but I am told they are the *White Tokay*. There were two or three bunches on them, but they did not ripen the fruit as they ought, nor yet the wood. The border is always planted with Potatoes. It became very dry last summer: I did not water it, but I think I ought to have done so. This year I thought of giving the borders a regular good soaking with liquid manure from the stables. I can have as much as I like. Will it be too strong to apply it alone? or will it want mixing with water? I thought of digging little holes about three feet from the stems of the Vines, and pouring the liquid manure in by bucketfuls. In what stage do the Vines want to be when you apply the manure water? This year I began to force about the middle of February. I began with about 50°; then kept it up to about 60° in the day. I could never get it higher in cold dull days. I have always kept the house very moist. Now the sun has more power the house is often up from 70° to 85° at noon. Some of the bunches are just coming into bloom. Ought the house to be kept moist or rather dry when the Grapes are in bloom? I think rather dry myself; but a man has told me that the house ought to be kept very moist with plenty of steam, or the Grapes will not set well. This year there were not above half as many bunches showed, and more than half of them have shanked or wired off. The bunches on the main or leading shoots from the young wood have all shanked off. What do you think is the cause, and how am I to prevent it? Do you think it would be any use to dig the Vines up, and raise the roots? If so, I should like to try half the house first. When would be the best time to do it? and how? If I raise the roots, would it be best to cut all the old wood away at the same time, and only leave the eight feet of young? At least there will be twelve feet of young wood with this year's wood. I have had the Vines under my care for about fourteen months. I have been told the bunches have always shanked off, little or much, when started early. The border has not been covered these last two winters."—A Young Beginner.

In endeavouring to reply to this long letter of "A Young Beginner," I will try and meet the case of several other inquirers on the same subject.

1st. *Mode of Pruning and Training.*—I do not think this is of the least importance, if the Vines are healthy, vigorous, and the great mass of roots within twelve to eighteen inches of the surface. Cut and train how you will, there will be plenty of fruit if you leave enough wood to produce enough shoots for the season. I have taken long old rods of such Vines, cut every vestige of a shoot or spur off in winter, leaving not a visible bud; but from the cut parts the Vines threw out several shoots when growth had commenced, and it was only necessary to leave the requisite number with their incipient bunches for a crop. Similar Vines had been spurred close in, leaving only a single bud at the base of every side-shoot last season, and the result was equally satisfactory. On such Vines when desirable to renew the stems, the old stem had been cut down to the bottom as soon as the fruit on it was gathered; care having been taken the previous summer to grow a young shoot from the base to the top of the house, and get its wood well browned before the autumn. Sometimes I have

thinned out the buds on such a shoot before exposing it to heat; and at other times have thinned them out after the buds had broken and shown, so as to select shoots at regular distances, if I wished to establish that rod as the basis for future spur-pruning; or selecting the shoots with best bunches, if I merely wished to continue the fresh-rod system every year. In either case, Vines at all vigorous will make a fair shoot in one summer that will fruit well and regularly the next, the older stem being removed. If there is a difference at all, these young shoots will show the finest bunches; but established old shoots, or rods with spurs, will generally swell off the bunches best, though they do not look so well at first when the bunch shows.

On the other hand, when Vines are extra luxuriant, producing large parasol-foliage, and some splendid bunches, but irregularly, and having many of the side-shoots barren. These are signs either that the wood had been imperfectly ripened the previous year, or that the roots are so deep, and so far beyond atmospheric influence, that the Vines have a difficulty in secreting a sufficiency of matured organised material. In such a case, the common rule will hold true, that the extreme of luxuriance will be opposed to the extreme of fertility. In the first case (want of ripening of wood), that may be amended by all the sun possible in autumn, and a month's firing in September and October; and if that is secured, you may please yourself as to modes of pruning and training. If extra luxuriance and want of fertility combined on the other hand, are the result of the roots being deep—say, two or three feet or more from the surface, then I should expect that a rigid adherence to spur-pruning would only aggravate the evil, unless great care were taken, not only to disbud from above downwards, so as to swell the buds at the base of the shoot, to which you mean to cut back; and the border outside and the air inside were kept more than ordinarily dry and warm in autumn. When managing such Vines, I have always found a modification of the young rod-system the most certain for securing a crop. For instance: If the rafter were only from eight feet to twelve feet in length, then I would grow a fresh rod every season for that length, and cut out the old one when done fruiting. If the rafter were from twelve feet to twenty feet in length, I should have two rods, one from the middle to the top, and one from the base to the middle, which, together, would give bearing wood from top to bottom; and, as in the former case, when fairly established, one old rod from top to bottom would be removed every year. When I became tired of this mode, and resolved to adopt the simpler plan of spur-pruning, then I would make up my mind to lift the roots and place them in well-drained fresh soil within nine inches of the surface.

I wish I could make the reasons of this treatment obvious. In the case of Vines moderately healthy and luxuriant, the consequence of the roots being near the surface, the moisture absorbed by these roots is so extra oxygenised, so to speak, that the foliage throws off the extra moisture by evaporation with ease, and, as already noted, the whole plant becomes a store-house of fertile organised material. In the case of Vines deeply planted, the large leaves have just a greater amount of duty to perform, in elaborating the much cruder sap raised from depths beyond the oxygenising influence of the atmosphere; and, therefore, the organised fertile material, instead of being so abundant as to be diffused over the whole plant, is chiefly concentrated in the well-rounded prominent buds at the base of the leaves on the shoots of the current year's growth. Let us take one step more in company, and I leave every one to form his own conclusions. Examine, by-and-by, the buds on your spurs of the current year's wood—say from eighteen to twenty-four inches long, and you will find the most round and prominent ones near the end of the shoot, while those near the base to which you intend cutting back in winter, are small, angular, and almost imperceptible. True, as has already been said, you may swell these by gradually disbudding downwards during summer; but even then your lower bud or buds will not have the plumpness and size of the upper ones. Now, the same will be seen on a nice young rod from eight to twelve feet in length, or more; but then you do not need to depend upon three or so of the lowest buds to produce fruitful shoots, while all above may be well swelled and rounded.

To accomplish this, farther attention must be paid, first, to the encouraging of laterals, and then removing them gradually, as was referred to in a late number. The first is necessary to give strength to the young shoot and buds; the second to insure the maturation of that strength. When we tire of this plan, then we must either entice the roots nearer the surface, or remove the surface stratum, or, best of all, raise the roots nearer to it. To me there seems no mystery in the matter. If I wanted a young Oak to become as quickly as possible a huge timber tree, I would give it very deep rich soil, and let its roots go as deep as they could. Did I want it to produce acorns early and plentifully, I would treat it exactly the reverse. Did I grow Vines for timber, I should care little about the depth of their roots, if the wood were just matured enough to stand the frosts of winter. People used to talk of planting Pear trees for their grandchildren; but now Messrs. Rivers, Lane, and others, show us we may eat Pears the first and second year after planting. Fertility is made the main object, and strength when necessary is given by rich surface dressings, and not by depth of roots.

Now, I do not know the state of the roots of the Vines of "A Beginner," nor the length of the rafter of his house; but I should be almost inclined to come to the conclusion, that Vines that produced some twenty bunches a rafter could hardly be considered unfertile; and if the leaves were not of great size, I should almost believe that the shanking and wiring of the bunches were as much the result of weakness and want of ripeness of the wood the previous season, and, perhaps, a little frost in autumn, as deep planting; but however this may be, as there are two Vines to a rafter, so each of these Vines has a double stem, one supplied with long, old, unsightly spurs, nearly two feet long, and the other forming a younger shoot, I should certainly advise giving during the present summer all the running, as to growth, to the younger stem, so as to be able to remove entirely the older stem after the fruit was cut. For this purpose I should encourage the shoot from the end of the younger rod to go to the top of the house this autumn; and if the lower part of that shoot were supplied with properly-placed healthy side-shoots, this main one at the end would be the chief young shoot to which our attention should be directed. If these spurs or side-shoots did not please me, then I should train another young shoot from the bottom, to rise to the height of eight feet, or as far as the new rod extended before the present season's growth. By either of these modes the Vine would be renewed in vigour, and, most likely, in fertility. By the first mode laterals would be left at first at each joint of the young shoot, and a few would be left on the side-shoots, whether they bore fruit or not, removing them gradually in either case in autumn. By the latter mode, as soon as the young shoots were growing vigorously, and as on them I should depend entirely next year, I should gradually remove all side-shoots that did not show fruit, and allow very few laterals on those that had fruit, as the free-growing, unstopped young shoots would sufficiently keep up a vigorous root action. One of these modes, according to circumstances, I should recommend in the present case, as the Vines will be so far renewed, and these old spurs and their old stem be wholly got rid of. Besides, two main shoots to a rafter are just one more than most people would have, and four I consider out of the question.

2nd. *Covering, Cropping, and Watering Vine-borders.*—I agree very much, in the main, with what has been said on the covering of borders by Messrs. Bailey and Errington. The dry materials, however, spoken of are not always easily obtainable; and when some eighteen or twenty-four inches of such material are used, the damps of winter and the returning warmths of spring, will cause them to ferment and produce almost as much heat as ever I obtained from fifteen inches of tree leaves, and, perhaps, a little litter. I thoroughly believe, however, that much danger is incurred from having, perhaps, a yard of hot-fermenting material over a border; not merely from the danger of hurting the roots, if they are near the surface, but also from the likelihood of injuring them by carelessly and at once removing that covering. I allude to the matter here, for fully corroborating the idea of my friend, Mr. Errington, or what, more properly speaking, would be expressing a satisfaction that my own conclusions were confirmed by such an authority—viz., that many Grape failures this season are owing to the sharp, early frosts in October last year. I used to put a little litter on the borders before that time; but the fine weather previously put me off my guard. I find in consequence two or three Vines are considerably injured, and I think that all, except late houses, that were a little covered, suffered less or more. It is true that these Vines have long borne very heavy crops, and that in giving them some fresh compost this spring the roots were somewhat injured; but the two Vines that seemed to suffer most were not only exposed as to their borders, but the holes by which they entered the house had been left rather open, and, consequently, by not noticing it, the frost there seized directly on the stems. I also allow

that it is difficult to transmit heat downwards, but also consider, as proved by previously recorded experiments, that it will be so far so transmitted. Had I plenty of dry fern, however, in the month of October, I do not think, unless in the case of very early forcing, that more heat would be required than would be retained first in the soil, and then communicated to it by the languid fermentation. The more shallow the roots, the more some kind of covering is necessary—first, to protect them; and, secondly, to attract them to keep equally shallow. For roots two feet or more deep, a little litter is all that is necessary merely to prevent the ground getting extra cold. No covering on the surface would do much to influence them there. A mild heat on the surface of the border, and a fair portion of moisture, just say to the active roots, "Come here and enjoy yourselves." Without such enticements upwards, downward after heat and moisture they will go. One reason why some of us were caught last October was owing to the previous fine, mild, sunny weather. The sun's rays on a Vine-border are, after all, the best warming-pan. Once come to this conclusion, and what are we to think of heavily

Cropping Vine Borders?—Cropping with early Potatoes would be as unobjectionable as any, as I should expect the border to be clear by Midsummer, or shortly afterwards. The longer the tops were there, the more injury would they create. Such a vinery begun in March would, as respects its border, if the roots were not very shallow, need but little protection. If begun earlier, more attention would be needed. I think not so much of the Potato-roots exhausting the border, though that would be something. The shade of the tops, first in preventing free evaporation and keeping the sunbeams from the soil, would be much more ruinous. I have examined earth under a thick canopy of Mignonette, and such things on such borders, that I will not trust myself to say how many degrees lower it was in temperature than soil at an equal depth fully exposed. Besides, the soil was dry, and the Potatoes would make it drier, and, therefore, the roots under such circumstances, in mere self defence would go downwards in search of what they needed; and the deeper they went, and the earlier the Vines were forced, the likelier the tendency to wired, shanked, and bad-coloured bunches. Watering, &c., I find I must defer. R. Fish.

BUILDING A SMALL FERN-HOUSE.

We have a small greenhouse 17 feet long, with a brick wall 10 feet high at the back. The back has a south aspect. Will it do to build our Fern-house at the back of this wall, and to cover it with glass the same as the greenhouse? The greenhouse is heated with hot water. The boiler is at the east end of the house, therefore we can heat both houses with the same boiler. Will the Fern-house require windows for giving air?—Jack-of-all-Trades.

[Your Fern-house will answer admirably. We should have the roof all fixed, and a small window in each end near the ridge made to open. In very warm weather in summer the door might be opened at times.]

INFLUENCE OF THE MOON OVER THE WEATHER.

Is it not true that M. Duhamel, M. Toaldo, and other men of science, have maintained that the moon has a considerable influence over the weather? If they entertained such an opinion, can you state what rules they established for foretelling rainy and fair weather?—Este.

[It is quite true that Duhamel, Toaldo, and many other meteorologists considered the moon a dictatress of the weather; but Sir W. Herschell, Sir J. Lubbock, and other more recent observers of the seasons denied that the moon has any such influence. In reply to your query, however, we republish the following from a work by Col. James Capper, published at Cardiff about fifty years since. Its object is to show that similar seasons occur every nineteenth year. Those who remember the spring of 1841, will be able to say whether, in the same locality, it has hitherto resembled the spring of 1860; and so, too, they may compare 1859 with 1840.

"In the 'Connoissance des Temps' of the year 1780, page 324, a striking resemblance is noted by M. Duhamel, in the temperature of the years 1701, 1720, 1739, 1758, and 1777. But to come nearer to our own time, the warmth and drought of the summer of 1781 and 1800 must now be well remembered by many. The former has been repeatedly mentioned in a variety of foreign journals; and the latter is recorded, as before observed in our own tables; and also by Mr. Bent, who has published meteorological journals kept by him in London for many years. In his general remarks on the year 1800, he says, 'The distinguishing feature in this year is a hot and dry summer, little more than an inch of rain fell in the former part of June; and from the 22nd of that month a continued drought prevailed for fifty-eight days to the 19th of August.' But the truth of our hypothesis respecting the effects produced by the circulation of the electrical fluid from the periodical return of the tides, which are coincident with the revolution of the moon, need not rest on the bare testimony of one or two solitary facts. Toaldo, than whom no person has paid more attention to this subject, in a new edition of his 'Saggio Meteorologico,' published 1781, very confidently asserts that the return of cold and warm, wet and dry years, evidently corresponds with the return of eclipses; which of course only occur at the expiration of about eighteen years and eleven days."

TABLE OF LUNAR CYCLES.

1819	1838	1857	1876	1826	1845	1864	1883
1820	1839	1858	1877	1827	1846	1865	1884
1821	1840	1859	1878	1828	1847	1866	1885
1822	1841	1860	1879	1829	1848	1867	1886
1823	1842	1861	1880	1830	1849	1868	1887
1824	1843	1862	1881	1831	1850	1869	1888
1825	1844	1863	1882	1832	1851	1870	1889

GENEALOGY of the CRYSTAL PALACE SCARLET AND IMPROVED FROGMORE GERANIUMS.

"Fair Play," a gentleman in the Lothians, who has sent us his name, was told by "a most respectable London firm that the *Crystal Palace Scarlet* is just the same as the *Improved Frogmore*." To speak mildly, that was "a most respectable" great mistake; for no nurseryman can gainsay the records of the "stud" book, to which we have applied in order to be able to satisfy our correspondent, who dates from the most celebrated garden within fifty miles of Edinburgh.

Frogmore Scarlet had the greatest run yet as a bedding Geranium; it was a seedling by the present gardener of Her Majesty at Windsor or Frogmore, Mr. Ingram. Some years after the birth of *Frogmore Scarlet*, Mr. Toward, Her Majesty's head man at Osborne, had a favourite Scarlet with the late Duchess of Gloucester, which he called *King of Scarlets*. From eighteen years to twenty-four years back these two were the registered first veins in spirit and in blood for bedding on the turf, and hundreds of crosses were had from their united breed. Twenty years back *Lady Agnes Byng* was the best seedling of that breed; and the *Improved Frogmore* of that "most respectable firm" is one of six different names which referred only to one plant, and the plant was *Lady Agnes Byng*, or *Alice Byng*, we forget which; but her Ladyship lived at Livermere in Suffolk at the time, and Mr. Dick, from Ballendean in the Carse of Gowrie, was her gardener then. *Tom Thumb* was a seedling down that gate soon after from the same strain, and it put *Lady Agnes* or *Alice Byng*, and her mother and father, the *Frogmore* and *Bagshot Scarlets*, on the shelf. Then *Tom* must have been better than all that breed for the turf.

Now *Tom* himself is being superseded by another and still a better kind from the very same blood. The *Crystal Palace* kind is thus removed two degrees of comparison in the right direction beyond the memory, and the knowledge of one "most respectable firm" at any rate; and if that firm has nothing more respectable to offer to the Lothian gardeners than *Improved Frogmores*, they will have a most respectable balance on the wrong page of the book in a very short time, for no respectable gardener would now plant an *Improved Frogmore* in his flower-beds, nor a *Royal Dwarf*, nor a *Collins's Dwarf*, nor ten others of the same stamp and of the very blood of *Frogmore*.

The *Trentham Scarlet* at Sydenham was derived, in 1843, from a sister of *Improved Frogmore* by the pollen of *Towards' Bagshot King*. *Punch* is a half-brother to it by the same father

from an aunt of *Improved Frogmore;* and both *Punch* and the *Crystal Palace Scarlet* will give seventy-five per cent. of seedlings quite true to kind. About 18,000 of that race passed through our hands, and we could tell the best of them by the leaf; and there was always a slight difference in the self seedlings; but that could not be detected in a bed. Our correspondent, who has had the *Improved Frogmore* fourteen years, received it when six kinds claimed the palm of honour to be that improvement, but their differences were not much to speak of. As other "respectable firms" may be as far out in their registers of best bedders, it behoves the public to look before they buy, and make sure of a shop which can be depended on for the true *Crystal Palace Scarlet.*—D. B.

EDGING FOR A CIRCULAR BED OF SCARLET GERANIUMS.

What would be the most appropriate edging (annuals preferred) for a circular bed, the middle of which to be filled with *Tom Thumbs* (scarlet)?—A Subscriber.

[*Lobelia speciosa* in an edging nine inches in width, and from seeds, as an annual, is the best for a *Tom Thumb* bed, as you might have seen last year at the Crystal Palace round the Araucarias on the centre of the upper terrace; only that instead of *Tom Thumb*, the kinds there were the *Crystal Palace Scarlet*, which is far superior to *Tom*, and *Cottage Maid* alternately. There is no treatise, of much use, on growing Melons.]

DIG DEEP: OR PROFIT NOT.

It is well known that a very essential difference exists between uncropped, or what are termed "maiden" soils, and hard-tilled, or, in gardening language, hard-cropped soils. In what does this difference consist? The chemist cannot thoroughly explain it so as to make it tangible; and the practical,—who, in general, by a kind of rule, derived, however crookedly, from a long course of observations,—is also at a loss for a reason. He can tell you about the various results that have occurred as years rolled on; and, like other men, has taken the liberty of drawing his inferences, whether correct or not; and this, in the main, forms the foundation of what is called practical knowledge.

A long course of practical observation is not to be despised in this question. As to the results of deep digging I may speak freely, having been a practitioner somewhat extensively for many years. I have before strongly urged this practice in the pages of The Cottage Gardener; but, as the Scotch say, "a gude tale is nane the waur for being twice told," I must beg to rewarm the subject.

In the first place, what is the history of what are termed hard-worn soils? Generally speaking, unless they contain much of the clayey principle, they become soft to the touch, powdery and deficient in coherency. They may possess abundance of what is called humus, or the black residue of many manurings; but all this will not compensate for the loss of texture in the soil. I have been in the habit for years of using considerable quantities of tree leaves, the park producing immense quantities. These leaves also generally contain a little dung, having been used about hotbeds. I have also used them from the leaf depôt, after lying there for some eight or ten months. After this, they adhere together in masses only half decomposed; but they never answered so well as the former, unless for the purpose of trenching down to a low level, where they form a capital pasturage for all deep-rooting crops, especially in the heat of summer.

The other, or those fermented with a portion of dung, always produced different effects; these in the process of trenching are kept much nearer the surface.

Thus much for the introduction of organic matters in digging processes. What most surprises me is, that the market gardeners continue to crop hard with vegetables for years, and yet we do not hear of their soils wearing out. I believe it to depend on the immense quantities of fresh dung they introduce in their digging processes, and which is tolerably fresh organic matter, while it in a considerable degree represents the organic texture of turfy materials. I therefore imagine that we should take a lesson from them; and even in trenching, to introduce this material during the process. The organic texture of turf differs exceedingly from mere soil and from humus. I suppose this is owing to two or three things. First: Farm crops, grasses, &c., are so very different from the produce of the old kitchen garden, that it is at least a distinct change. Talk of rotations as a change, have we not instances amongst timbers, trees in native forests, where Nature, we are told, has established this principle? or else we have been wrongly informed, how that a generation of one kind, which has held possession of a site for centuries, on being cut down and cleared, a crop of another kind sprung up spontaneously. In the next place, turfy soil is a more ready transmitter of moisture than mere worn soil, or even humus. The latter, on receiving rain, just suffers it to pass by mere gravitation; the humus simply absorbs what it wants. Turfy soils not only quickly absorb, but they transmit to other bodies, possibly up as well as down, and this, I suppose, by capillary attraction. Well, then, we come to another point—they preserve a peculiar texture, as compared with anything else, and the steady and constant supply of food they afford for nutrition to vegetables, &c. These I consider points wherein the peculiar character of turfy soil consists. But we all know by experience, that the ordinary practice in farming operations is, to occasionally lay down the land to grass, for thin soils get tired of the plough, as ours do of the spade.

But I protest against trenching turf down deep in kitchen gardens. Where deep trenching takes places, vegetable rubbish, weeds, waste strawy material, and raw leaves, should be introduced in the bottom of the trench. I trench every plot once in about three years, and have for years adopted this practice with the very best success. After this raw material lies at the bottom, attracting a deep rooting in vegetables, and forming a pasturage in summer. In three years by the trenching process it is brought up into fresh company, and is then only half decomposed. In all trenching processes, I make it a point to bring up a little of the subsoil if at all workable. Indeed, this and deep digging have completely renovated Oulton Park gardens, which had become almost worn out, as it is termed.

There is yet another point which I consider of great consequence in deep trenching—it is a certain destroyer of myriads of vermin; of this I am thoroughly assured. Twenty years since these gardens were infested so with slugs and other things, that it was with the utmost difficulty I could secure many crops. The Lettuce and Strawberry plants were injured below ground by grubs; the young Carrots were slug-devoured; the Cabbage and Broccoli family clubbed seriously, and were finally forced out of existence by the wire-worm. There can be no doubt that the surface of the soil for about five or six inches in depth is full of the eggs of these depredators; and that themselves, in many cases, crawl down into cavities. But transfer this surface soil to the bottom—say thirty inches, and few will ever find their way to the surface again. R. Errington.

DERIVATION OF SEQUOIA.

Your readers have all heard of the great trees of California; those remarkable productions which for size and magnificence are unequalled by any others known. One of these monsters measures 93 feet in circumference and 300 feet in height. Another, prostrated, measured 40 feet in circumference, 300 feet from the butt, and must have been between 450 and 500 feet long.

For the great tree, "big" tree, many call it incorrectly, the names of Washingtonia and Wellingtonia have been proposed; but it has been found to belong to the genus *Sequoia*, which contains the celebrated Redwood of California. Much has been written concerning the age of these giants—one writer making them of considerable size at the time of Moses. A section of the trunk of a tree first noted above, which was bored down with pump augurs and upset with battering rams and wedges, was carefully examined by Professor Torrey, who counted all the rings, and could discover but about eleven hundred. Still, they are sufficiently old to command respect; and should they be preserved to future ages will continue most wonderful representatives of the vegetable kingdom.

Whence is the name Sequoia derived? Has it been intentionally applied, or is it an accident that this American tree commemorates the name of an American, of whom, perhaps, few white men have ever heard? Away with the misnomers Washingtonia and Wellingtonia, and all honour to See-quah-yah, the American Cadmus, the inventor of the Cherokee alphabet. Surely if the genus were not named in his honour, it should be so now. History does not furnish forth a parallel to this untaught, this self-taught Indian, who struck out, as it

were, at a blow, a perfect system of written speech; and these unrivalled trees may fitly hand him up to fame.

See-quah-yah, (*Sequoia*) or George Guess, the inventor of the Cherokee alphabet, was a half-breed, his father being a white and his mother a Cherokee. He was, at the time of the invention, not only unacquainted with letters, but entirely ignorant of any other language but his own. His invention appears the more remarkable since he received no instruction from without; but by the unaided force of his reasoning and inventive powers, placed in the hands of his tribe the instrument by which they have advanced beyond all other Indians to a respectable degree of civilisation. He appears to have possessed a reputation for talent when very young, and was especially expert in the manufacture of ornaments in silver, which were the admiration of his people. As an artist in colours he was excellent, drawing from nature with surprising accuracy. A man of extraordinary shrewdness, of diversified talent: passing from metaphysical and philosophical investigations to mechanical occupation with the greatest ease.

He early understood and felt the advantages the white man had long enjoyed, of having the accumulation of knowledge from generation to generation, stored up by means of written language, while the Red man could transmit his thoughts and discoveries by uncertain tradition alone. To remedy this difficulty, and to place in the hands of his people the instrument of progress, was one of the great aims of his study; one which he accomplished beyond that of any other who ever existed in a rude state of nature.

The story of his invention is told as follows:—Sequoia was present when a letter which had been found upon a prisoner was wrongly read by him to the Indians. Reflecting on the power of the white man to impress his thoughts upon paper, the question arose whether the mysterious gift of the talking leaf was derived directly from the Great Spirit or the discovery of the white man himself. Most of his companions were of the former opinion, while he strenuously maintained the latter.

At one of the council fires, at which the recollection of their fellow tribes who had perished as if blasted by the touch of civilisation, the retrospect of their former extent compared with the present limits of Indian power filled the chiefs with gloomy forebodings, and disposed them to envy the influence of that civilisation which rendered the white man immeasurably their superior. Sequoia arose from his seat, and pointing to a book told them that *there* lay the secret of the white man's power; that it was by recording his thoughts and observations he had been enabled to effect the wonders they witnessed; and that if the Indians could but invent a method of writing their language, their inferiority would no longer be felt.

Having become disabled by lameness from partaking of the excitements of war and the chase, opportunity presented during his confinement for deep reflection upon the power of speaking by letters; the very name of which was not to be found in his language. From the cries of wild beasts, the talents of the mocking bird, the voice of his children and companions, he knew that feelings and passions were conveyed by different sounds from one intelligent being to another. He at first attempted to represent these by pictorial signs, but finding them to multiply infinitely he abandoned the method. He possessed a stamp which had been made for him by a white man, with which he marked his work. He knew that the white man could express himself by signs; and he had a fragment of a book, a sealed book to him, for he did not know how these signs expressed the sound in English. His next effort was to find a sign for every sound in the Cherokee language, but these became too numerous. At length his way appeared more clear. He found that many sounds were variously combined; that words could be divided into syllables; and that these same syllables aided in forming many words; and that his language was made up of but a few sounds variously arranged. Could he give a sign for each of these sounds, his end would be attained. He was living apart from his people, absorbed in his labour, seeing but one attendant who supplied him with food. He had reached the right track and made rapid advances and already believed he had completed his labours.

His daughter, however, possessed a more acute ear, and on teaching her the new alphabet, she detected differences which he had not perceived, and pointed out compound sounds he had supposed to be simple. By these joint analyses the language was reduced to eighty-five monosyllables, for each of which he had assigned a separate letter. This invention was made in 1821. Considerable improvement was afterwards made in the formation of the letters. In 1827 a fount of type was cast and the first number of a paper called the *Cherokee Phœnix* issued.

The paper was originally printed partly in Cherokee and partly in English, and I am not aware that the plan has been changed. The alphabet, which is before me, is composed mainly of English capitals, Roman and Italian, small letters advanced to the dignity of capitals, Arabic numerals, some resembling the Greek letters, the remainder inventions and combinations of English, and new forms bearing no analogy to any ancient language, but allied to the inventions of the phonographer.

Like all other inventors, See-quah-yah was not permitted to pursue his investigations undisturbed. Alone, secluded from his fellows, who passed his wigmam without entering it, he persevered amid ridicule and the imputation of witchcraft and mystery. Without the knowledge of the pen as an instrument, he made his characters on a piece of bark with a knife or nail. Afterwards he procured pen and paper from an Indian trader. The ink he supplied from some bark whose colouring properties he had previously known. After seeing the construction of a pen he learned to make one, but the first being without a slit, his own sagacity soon removed the difficulty.

He was now prepared to bring his invention before the assembled wisdom of his nation, and demonstrate that he had indeed made a discovery with which no supernatural agency was concerned. His daughter, as yet his only pupil, was ordered to go beyond hearing distance, while he requested his friends to name a word or sentiment which he wrote out. She was then called in, and read it to them. The father then retired, and the daughter wrote with similar success. The Indians were wonder-struck, but not satisfied. "I have learned to talk on paper, and hereafter the Indian may do what the white man has done," said Sequoia; "I will prove it to your satisfaction." He proposed to select several of the brightest young men of the tribe, to whom he might communicate the mystery. This was agreed to, not without a lurking suspicion of necromancy aiding the business. The tribe watched the youth for several months, and when they offered themselves for examination the feelings of all were wrought up to the highest pitch. The boys were separated from their master and from each other and watched with great care. The untaught directed what the master and pupils should write to each other, and the tests were varied so as to prove their accuracy and freedom from any collation except a common knowledge of the signs invented by Sequoia, and to firmly fix their faith. See-quah-yah became at once distinguished. A great feast was prepared, in which he was made conspicuous. He became at once, schoolmaster, professor, philosopher and chief. His countrymen were proud of his talents, and held him in reverence as one favoured by the Great Spirit. The council of the nation voted him a money reward, which he declined. A silver medal was obtained for him by the delegation to Washington City, in 1824, but what inscription it contained I have not learned.

From this hour the progress of the Cherokees has been onward and upward. Their system of government is republican, their religion the Christian; bringing the attendant blessings in their train—public schools and seminaries of high grades, for both sexes, are in operation. Bible Societies and agricultural associations prosper, and under the wise government of their chief, John Ross, every stimulus is given to aid in developing the resources of the country, and a wise improvement of the manifold social, intellectual and political privileges they are permitted to enjoy, and by which they have made so wonderful a progress in the pursuits and knowledge of civilised life.

Honour to the inventor, to the man who pioneered the path of civilisation and enlightenment, and sowed the seeds of innumerable blessings, to be reaped by millions unborn. Let the name of See-quah-yah, whose genius towers aloft above that of every other native of this inventive land, live for ever in the majesty of the denizens of the primæval forest that bear his name in the Sequoia.—L.

[Endlicher does not give, in his *Synopsis Coniferarum*, where he names and describes the genus, any reason for his choice of the name, and as he was no less noted for his philological knowledge than his botanical, it is not at all unlikely that he knew Sequoia's history, and that "L." has hit on the secret.

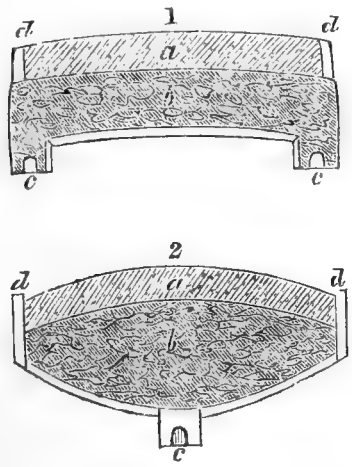
The whole history is one of the most interesting we have had

the pleasure of recording in our columns. Our intelligent correspondent, himself having family relationship with the Cherokees, renders the history the more reliable. With regard to Wellingtonia, we believe all European botanists have united in considering that Dr. Lindley was mistaken in dividing it from Sequoia, and no botanist has described it as Washingtonia. It is gratifying to the national feeling that Sequoia stands in the pleasant association "L." has found for it.—ED. *American Gardener's Monthly.*]

WALKS AND CARRIAGE-DRIVES.

FIRM, dry, lasting walks and carriage-roads are great comforts in any place, whether it be a palatial residence, a moderate mansion, a villa dwelling, or a mere cottage home. However grand a country home may be in other respects, if the walks and roads are bad, or out of order, the place has a desolate and untidy look. I have visited, I may say, hundreds of places in the course of a long life, and immediately on entering the grounds if I found the carriage-road and walks out of order, I made the remark in my own mind, I shall not find any good gardening here; and in nine cases out of ten my conjectures proved correct. In fact, I have heard the remark frequently made, that if the walks are clean the place looked tidy, though some parts of the ground were out of order. I am aware that the above remarks are somewhat trite and commonplace. They are drawn from me in consequence of "A SUBSCRIBER" to THE COTTAGE GARDENER having sent the following query:—"I shall feel obliged by information as to what are the best materials to make a good, solid, and hard garden-path and drive, and how are the materials to be used?" Now, if our correspondent had thought of it, and mentioned what materials he could obtain handy, I should have felt it easy to tell him how to use them.

There are three things necessary to form a good hard path or road—viz., thorough drainage, hard large stones for the under stratum, and good binding gravel for the surface. These three points properly applied, and the necessary care afterwards bestowed on the path, or road, will make a regular firm good job that will last for many years.



a Gravel.
b Rough understratum.
c Tile drain.
d Gratings and upright drains.

There are two methods of draining walks, as shown by the accompanying sketches. The one with a drain at each side (*fig.* 1), is the best plan for low wet grounds; because then the drain at each side, besides drawing off the water from the surface of the walk and the under stratum, also draws off the water that would otherwise come into the walk from the adjacent soil. For higher and drier situations, the drain may be placed in the centre of the path, or road, as shown in the sketch (*fig.* 2). It is for the purpose of carrying away the surface water in heavy rains. To convey this water away rapidly, there should be gratings placed here and there at each side of the path, with short drains connected with the main drains by means of upright open drains just under the gratings, where the main drains are at the sides of the walks, and with short drains added to the upright ones to carry the surface water to the central one. In sloping walks, these gratings should be placed very frequently in order to catch the water in heavy showers before it becomes a rapid stream, which would wash away the gravel and soon choke up the drains. This effective drainage is indispensable: therefore, whoever wishes to have a good, solid, dry path, or road, must first of all make the drains sufficiently good to carry off rapidly, both the under and surface water. First dig out the clay, or earth, wide enough and below the under stratum of material of which the walk is formed. Make the bottom of the drain firm and smooth; then lay down either slates or flat tiles, and upon them place well-burnt draining tiles made in this form ∩. Tiles made in this form are much better than circular ones, because they allow the water to enter them more freely and thus drain the walks more effectually. Place upon these tiles some open hard material, such as small stones, hard clinkers, or broken bricks, and bring this covering up to the under stratum of the path. This will complete the draining part of the operation.

The next point is the formation of the under stratum of the path or road. This is made of any hard materials that are most easily procured. Where stone is plentiful and of a hard nature it is the very best material for the purpose; but brick-ends or hard-burnt scoria serve the purpose very well. In wet swampy grounds, or even level clays, this stratum should be at least from six to nine inches thick. Place the largest pieces at the bottom, level them, and then lay on the next size, finishing with the smallest. If old lime rubbish can be had, a quantity of it mixed with the last layer will be of great service—it will help to bind it together. Let this last layer have a rounded appearance, the highest in the middle of the path. Then give the whole a good rolling with a heavy roller, and let it lie for a few days; and then, after rain, roll it again several times over, and let it rest again, as it were, for a week longer, then roll again as before; it will then be solid, and not liable to sink irregularly. In the meantime the gravel should be carted ready to the place. The thickness it should be laid on depends, of course, upon the supply and cost. It should, however, in any case, be thick enough to allow of turning over every autumn or winter, or at least every second year. The best kind is that which from experience is found to bind together in a compact mass. There should not be any large stones or pebbles amongst it—the size of a Walnut should be the largest: hence it should be passed through a three-quarter-inch riddle or sieve. Lay it on the right thickness, to bring it within half an inch of the edging on each side of the path. The centre should be the highest—say half an inch higher than the sides of a four-foot walk, and the same proportion higher in wider paths. Roll again immediately several times over, and repeat that operation at least once a-week. I have always found gravel set soonest if rolled when it actually rains. The wet prevents the gravel sticking to the roller, and also gives the roller more power over it. Let the operator put on a waterproof cape and hat, and roll his walk over in a gentle shower, and he will find he will do more good in once going over his walk when it is wet than a dozen times when it is dry.

Such is the method by which "A SUBSCRIBER," and any of the readers of THE COTTAGE GARDENER, may form a good, dry, solid walk—a drive that will last, with occasional freshenings of new gravel, for a lifetime.—T. APPLEBY.

NATIVE RANUNCULUSES.

IN the Ranunculus tribe of flowers may be found some of Nature's choicest gems; our gardens are indebted to it for some of their gayest flowers, and children, as they go a-Maying, are attracted by the wild varieties, and sing—

"Buttercups and Daisies,
Oh! the pretty flowers;"

and the most careless and indifferent observer of Nature cannot fail to notice the beautiful white flowers of *R. aquatilis* (White-floating Crowsfoot) as it floats on our streams and ponds. *R. ficaria* (Pilewort) is now showing its golden stars. The young leaves of this plant are boiled, and used as an edible by the Swedish peasantry. *R. repens plena* is one of our garden plants, and some situations will repay for a little extra care in the cultivation of it, and give some pretty flowers for bouquets; but it must be kept within bounds, or it will become as troublesome as the wild variety known by the name of Toadtether.

Last year *R. aconitifolius* (Fair Maids of France) did not do well with me: the dry weather set in just as the flowers opened, and the dry heat completely shrivelled them up; but this year they promise to do well, as I have taken the precaution to soak the

roots with water. *R. amplexicaulis*, with me, will not grow more than three or four inches high; and I find few persons who can grow it higher. I remember seeing a plant in a grass plot on the bank of a mountain stream—the spray of a waterfall kept the grass plot constantly damp. The plant when in flower was six inches high.

Some years since, in passing a fruiterer's shop, I was struck with the beauty of a bouquet of flowers for sale, composed of old favourites. In the centre was *R. acris plena* twice the size I had grown it or seen it in any garden. Thinking it might be a sport, I felt a desire to possess a root of it. Mentioning my desire to a friend, he had the kindness to get me a piece of the root from which the flowers were cut. It flowered in my garden the next year, and turned out to be the old variety I had grown many years. In this case soil and situation were the causes of the large flowers. The place in which the flowers were grown was a sandy loam in a damp shady garden.

Many of the Ranunculuses are acrid poisons; a variety of *R. flammula* is used in medicine as an emetic.—Rustic Robin.

EFFECTS OF THE LATE WINTER.

I like the suggestion of Mr. Robson very much, and consider that a general comparison of notes amongst gardeners will be producible of much practical and useful knowledge. I will endeavour to do my part for myself and the gardeners in the valley of the Trent; and believe me, it has required much very nice tact, and many very beautiful speeches, and a strong nerve, to face and keep the cook in good humour this spring.

Broccolis are totally annihilated; at least, the percentage left is so small that it is scarcely worth naming. I can just hear of a neighbour of mine who has six out of as many hundred. Cabbages nearly all gone; and what are left are almost all "bolting" pretty fast. *Mitchell's Early Albert* and *Enfield Market* seem to bear the weather the best. Scotch-kale, as far as I can learn, is almost totally destroyed. In my own case they are so. Cottagers'-kale as yet I do not grow. Brussels Sprouts have been our main stay. On all sides I hear that every one is satisfied with them. With us, though not in a good position—grown between Peas, and consequently drawn a little—they have stood us in good stead; and therefore I have made a note in our gardening-book, "Grow more Brussels Sprouts."

Speaking of Cabbages, we on our farm grow a few thousands of both early and late for the use of the sheep. In the autumn we planted and pricked out about 8000. I cannot better show our loss than by stating that the ground is ploughed over and planted with Potatoes; all are gone, and those who usually supply us when we want any extras, cannot do so this spring. In Nottingham Market last month I gave 6*d.* for a score of Cabbage plants, imported, I understood, from either Belgium or Holland. What kind they are I cannot say—they were any colour but green.—Nathan H. Pownall, *Holme Pierrepoint, near Nottingham.*

NURSERY-GARDENING FAR NORTH IN THE UNITED STATES.

The following letter, dated January 12th, is from Mr. George Taylor, well known to many gardeners who are our readers. He is settled and thriving at Kalmazoo, a part of Michigan, in the United States:—

"I find the greatest demand for Norway Spruce here, and from their habit of growth and a judicious moving of them, a good-furnished tree of four to five feet will bring a dollar; and if I had too many for my own locality they will pay to send out west. I think the Scotch Pine and Larch thrive even better here than they do at home, but they are not so well adapted for lifting in a large state as the Spruce. I sold above six hundred Spruce and Scotch Pines to the new Cemetery which just lies opposite me. These Cemetery grounds consist of about twenty acres, are elevated and rolling, and command a fine view of the town. They were laid out last spring with carriage-drives and ornamental plots; and in fine weather they attract a great many visitors, who frequently look in upon me, as I have an entrance opposite the main gate. I expect a good many more things will be needed for these grounds, as it was too late in the spring before there was a finish to have much planted. I also do some business with private individuals in this Cemetery. The ground is all laid off into burial lots of from six to nine yards square. These are for sale; and a person purchasing has an exclusive right to plant trees and decorate them according to his pleasure. A good many are enclosing their lots with a hedge of Privets, of which I can now furnish an ample supply at 1½ dollar per hundred—about three times the price of what I sold them with you. The Austrian Pine and Silver Fir do also well, but the Holly and common Yew I find to be rather tender for our severe winters. The Mahonia stands pretty well, but I am propagating my own stock of this from offshoots and seed. The common Hawthorn has done well with me, though in some of the eastern states it has been reported a failure. I have some thought of trying a hedge as a sort of occular demonstration. All that I have raised, I have wrought the double-flowering varieties upon, which when seen and known, will, I have no doubt, sell readily. The Arbor Vitæ does well, and is much in request for evergreen hedging. I could have sold thousands this last season if I had them; they grow abundantly as a native in the north of this State; but to go in quest of them or to hire to do it, would cost more than would procure them from the trade as seedlings. I have now a considerable stock of Apple and Peach trees, which I work myself from grafting and budding. I am getting some Quince-stocks to try the raising of Pears. They do well on our high ground here where there is a little clay, and are now being a good deal planted. This is a great place for Strawberries, many thousands of quarts are sent off to Chicago and Detroit, the time of the season. One man last year grew about ten acres. I had a few last year, I should think about three-eighths of an acre, from which I gathered about 500 quarts. A part of them were the kind known as the *Early Scarlet*, which we commenced pulling on the 1st of June; the other sorts coming in about a week later, and the season for them lasted just one month. The average price was from ten to twelve cents. per quart. I find, however, the *Black Prince* and *Keens' Seedling* will not do here. Those that are natives and acclimated seem to do best.

"Last season with us was not favourable for many things, especially those of vegetable growth. We had both late and early frosts, and through July and August, in our neighbourhood, we had hardly a drop of rain. I had very fine bloom of Roses early in the season, which were much admired and procured me some orders. I flowered above 1000 seedling Hollyhocks; a part of them were from seed I had from my brother John, but the greater part were from seed I saved from good sorts grown by myself from the stock I had from you. Paul Chater, brother John, and I, think I had the finest doubles from my native seed. I had no single or real useless among them, and I have selected a few which I have no doubt, with you, would have been making themselves known to the world for 10*s.* 6*d.* each. Their season of flowering was, however, very short, owing to the hot dry weather. Indeed, in this country this is one thing greatly against the Hollyhock. They commence flowering in the first or second week in July, and by the middle of August there is nothing to be seen but dry, withered stalks, but plenty of fine seed. I gathered a good quantity from some of my best sorts, and have sold some here and out west. I have no doubt it would be worth something to you, or any in your line where it is better known, and new and fine varieties are appreciated. If you think of having any, I think it could yet be sent in time for the sowing of this season. Mine here are greatly admired, and every one remarks that he never saw anything so fine; but yet I have sold comparatively few to what might have been expected.

"My Dahlias did not do much, owing to the dry weather, till late in the season, I had then some very fine blooms. I took the prize at our fair for the greatest and best variety, and could have taken it at Chicago for the best twelve, and also for the best seedling Dahlia. The great national fair of the United States, was held at that city in September. I took a run through to see that great upstart place, and the fair which would be represented by the whole Union. I was not aware when I left, as to what prizes were to be competed for at the floral part of the exhibition. I only took in my hand a small basket with blooms of a seedling Dahlia, some Roses, and a few spikes of the *Delphinium formosum*, just as a kind of novelty, so as to get people to speak to and talk about them. I found a large collection of the different sorts of cut flowers, with a few stove and greenhouse plants of a medium description; but nothing in any way equal to what you have at home. My seedling Dahlia was quite a-head of anything of that kind that was shown; but not having been regularly entered there was no prize.

"The *Delphinium formosum* was quite an object of attraction, and collected a crowd of admirers. I took a large package of the

seed in my pocket, with some seed of the Hollyhock, and sold a good deal more than paid all my expenses, besides introducing me to a large circle of new customers and acquaintances. There was some of the most splendid fruit exhibited, and throughout all the other departments many things novel and interesting. But the city of itself was a good deal of wonder to me. It has come into existence within the last twenty-five years; in whatever aspect you look upon it, whether in its large and extending streets, its elegant stores and palace-like hotels, its shipping and immense warehouses stretching all along the river, which forms a circuitous course for several miles throughout the city — these and many other things all taken together, raise our wonder how so much could have been got up and put together in such a short space of time."

PEARS ON QUINCE STOCKS.

In an answer to an inquiry by "Amateur," a first authority says that he may bud the side-branches of his pyramids in August, or cut them down to within a foot of the junction with the stock, and rind-graft them in the stem next April, placing two or three scions in it, and cutting off all but one after one year's growth, if a one-stemmed pyramid is to be formed. "Amateur" should have mentioned his soil and climate, as either one or the other must be peculiar for Pears to set their fruit, and then drop them off without ripening.

The following kinds may be budded or grafted on "Amateur's" trees with a good chance of success if the climate is at all favourable:—

Bergamotte d'Esperen	Doyenné de Comice
Joséphin de Malines	Marie Louise
Beurré Hardy	Louise Bonne of Jersey
Beurré Superfin	Beurré de Rance
Fondante d'Automne	

—B.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page* 105.)

RASPBERRIES.

Red Antwerp (*Burley; à Gros Fruits Rouges; Howland's Red Antwerp; Knevett's Antwerp; Late Bearing Antwerp*).—Fruit large, roundish, inclining to conical, of a deep crimson colour, very fleshy, and with a fine brisk flavour and fine bouquet. There are several forms of this variety differing more or less from each other both in the fruit and the canes. The true old Red Antwerp produces vigorous canes, which are almost smooth.

Rivers' Monthly. See *Large Monthly.*

Rogers' Victoria (*Victoria*).—This is an autumnal-bearing variety, producing rather large, dark-red fruit of excellent flavour, and earlier than the October Red. The plant is of a dwarf and rather delicate habit, and the canes are dark coloured.

Round Antwerp (*d'Anvers à Fruits Ronds*).—Fruit large and round, of a deep red colour, and much superior in flavour to the Old Red Antwerp.

Seacor's Mammoth. See *New Rochelle.*

Sweet Yellow Antwerp.—The fruit of this variety is larger and more orange than the Yellow Antwerp, and is the richest and sweetest of all the varieties. The canes are remarkably slender, and with few spines.

Vice-President French (*French*). — Fruit large, roundish, inclining to conical, of a deep red colour, fleshy and juicy, and with an excellent flavour. It is a summer bearer, producing very strong canes of a bright brown colour.

Victoria. See *Rogers' Victoria.*

Walker's Dulcis.—A summer-bearing variety, producing red fruit inferior in size to the Antwerp, and not sweet, as the name implies.

White Antwerp. See *Yellow Antwerp.*

Yellow Antwerp (*De Chili; Double-bearing Yellow; White Antwerp*).—Fruit large, conical, of a pale yellow colour, and with a fine, mild, sweet flavour. It produces pale-coloured spiny canes.

LIST OF SELECT RASPBERRIES.

Autumn Black	October Yellow
Carter's Prolific	Rogers' Victoria
Fastolf	Round Antwerp
October Red	Sweet Yellow Antwerp

(*To be continued.*)

ARRANGING FLOWER GARDENS.

May I, as an old subscriber, ask your advice about planting my flower garden, of which I annex the plan? Should this be too much to ask, will you kindly place it in the hands of that member of your staff who does such things, and I shall be happy to pay him his fee?—G.

[You mistake us entirely; what we can do we do for the good of all. None of our departmental writers accept fees. Tell us the way you planted last year, or intend planting this season. Put the house, or drawing-room windows, at the bottom of the page. One quarter of a terrace garden is sufficient for us, as by doubling the quarter we have the half of the terrace; and, of course, the other half is like it. The one-half of a terrace flower garden should be the duplicate of two quarters, and a whole terrace a duplicate of two halves: therefore, a quarter will tell how it looks just as well as the four quarters. Ten acres of flower-beds can be shown on one page of post paper quite sufficient for our use; but the names of the plants written on the beds give us only one-half the trouble of referring to a list. We criticise planting, but we never plant for any one. You give no key to read off our remarks on your planting, and it must be by guessing your windows to be at the bottom of the plan, that we can judge the principle on which you plant.

The border in front of the house (?) which is divided into triangles, and numbered from one to eight, is quite right, and the plants are well chosen. *Tom Thumb* with the *Golden Chain* round it, in a bed in the form of the eye, is quite wrong in principle, as we have explained six times every season for the last ten years. *Flower of the Day* or *Golden Chain*, and an edging of blue Verbena, or *Perilla Nankinensis*, with a broad band of some variegated Geranium, are the proper plants for that centre bed. The long bed, or border to the right, planted with Lobelias at one end, Stocks at the other end, and Verbenas in the middle, is wrong altogether; and, of course, its match on the other side is wrong also. If a bed is ten feet long, it is the same in principle as one ten furlongs in length, and should be planted accordingly. A ten-feet bed, and four or five feet wide, with three feet of blue Lobelias at one end, and three feet of Stocks at the other end, and four feet of Verbenas in the centre, is simply ridiculous; but plant the Verbenas all along the back, the Stocks in front of them the whole way, and edge the front with blue Lobelia, and the bed is not only most beautiful, but is in the height of the fashion or present taste, and the same plants planted differently make all the difference. If that bed were a mile long the planting must be the same; not so many yards of blue, so many of yellow, and so forth, as if one were experimenting to find out the relative value of colours, or of new plants. A beautiful scroll-border in the shape of a horseshoe and of great length, was once patched in that way, but the effect was so frightful, looking over a fine terrace garden, that no one could endure it. Now it is planted in continuous rows the whole way up one side of the horseshoe and down the other, and it adds a great charm to a pretty garden.]

NOTES ON FERNS.

Cibotium Schiedei. *Schlechtendal. Stem* short, thick, and roundish, densely covered with long, soft, silky hairs of a pale brown or amber colour. *Fronds* produced from the apex of this stem, six to eight feet long, somewhat triangular, bi-tri-pinnate, drooping, downy, light green, glaucous beneath. *Pinnules* lanceolate, crenated. *Veins* once forked. *Sori* usually produced only on the lower pinnæ, enclosed within a two-valved indusium; the valves unequal in size, gaping, and finally reflexed. *Stipes* stout, and clothed with silky hair.

This truly elegant Fern was discovered in Mexico by two German travellers, Schiede and Deppe, some years ago, but still

remains somewhat rare in gardens. The room which it occupies can only be spared in a few hothouses, but, nevertheless, it is decidedly the most beautiful of all the strong-growing kinds, and where it is desired to have a specimen plant which can stand out by itself, this is the one which should be selected. I have a vivid remembrance of one such plant, than which I have never in my whole life seen a more beautiful or graceful object. The pot in which it was grown was raised upon the trunk of an old tree set up as a pillar, and it had fourteen of its light green drooping fronds, each of which was at least nine feet in length.

The name *Cibotium* means a little chest, and refers to the form of the indusium. There is only one other species in cultivation, *C. Barometz*, the traditional "Scythian Lamb," which is a native of China and the East.

Davallia pentaphylla. *Blume.* (Synonymes—*Scyphularia pentaphylla*, Fee.) *Fronds* pinnate, usually with two pairs of pinnæ (occasionally three pairs), and a larger terminal one, coriaceous, smooth, deep green, shining; pinnæ lanceolate, slightly stalked, margin serrated. Fertile fronds rather narrower and fringed on the under side with the tubular cup-shaped indusia. *Veins* forking, with free venules. *Stipes* smooth, four inches long, articulated with the creeping rhizomes, which are thickly covered with narrow, brown, hair-like scales.

This plant is a native of the Malayan Archipelago, and was introduced from Java some ten years ago by the Messrs. Rollison, to whose enterprising spirit we owe so many of our best Ferns. It is well adapted for cultivation in a basket, from which its rhizomes will depend in a most graceful manner. If grown in a pot it should be pegged upon the surface of a cone built up of rough pieces of fibrous peat. In common with many other creeping Ferns it does not like to have these rhizomes buried. It is a neat, small-growing, distinct species, well worthy of cultivation, but requiring stove temperature.

Platyloma rotundifolia. *J. Sm. Fronds* linear, pinnate, drooping, about eighteen inches to two feet long; pinnæ nearly all of one size—that is, about half an inch in length, roundish, or elliptical, cordate at the base, nearly sessile, leathery, shining, of a dark glossy-green colour, articulated with the rachis. The *sori* form a broad marginal band along the side of each pinna, partially protected by the reflexed edge of the frond. *Veins* forking; venules free and sporangiferous for nearly half their length. *Stipes* covered with brown scales, giving it a shaggy appearance. *Rhizome* creeping.

This Fern was discovered many years ago in New Zealand by the celebrated botanical traveller, Allan Cunningham, who describes it as growing in dry forests on the banks of the Kana-Kana and Wycady Rivers, Bay of Islands, in company with *Adiantum affine* and *Lygodium articulatum*. Although introduced to our gardens soon after its discovery (1823), it is not yet so generally grown as it deserves to be. Its merits are that it is nearly hardy; quite so, probably, in Devonshire, the Isle of Wight, and other favoured localities. It is very suitable for growth in a Wardian Case, and it makes a graceful and interesting basket or vase plant for the decoration of the conservatory.

Its very appropriate name is derived from *platys*, broad, and *loma*, an edge or margin, referring to the sori.—Karl.

THE CANARY AND THE BRITISH FINCHES.

(*Continued from page* 89.)

FANCY BREEDS.

1st.—Norwich Birds.

The Norwich Canaries are those most extensively kept and bred in this country. They are of the common size, rather short, stout-built birds, and usually quite clear from marking, either Jonque or Mealy in colour.

Mr. Kidd remarks—"The two great places for the breeding of Canaries are Yorkshire and Norfolk. The birds which are raised in Yorkshire are not celebrated for their beauty, so much as for their strength, stamina, and song. The Norwich birds are of a fine orange colour, but are more delicate."

Referring to the London dealers he says—"They have their principal supplies sent up in autumn, at which time and until Christmas they are busy as bees." Of the birds he says—"They are sent up young and full of song, being generally placed in company of old song birds as soon as they are well fledged."

The *Jonque*, or *Jonquil*, as the name implies, is a rich yellow inclining to an orange tinge. The *Mealy* is white with a mixture of paler yellow or lemon. These two colours cannot be regarded as different breeds, because they are constantly bred together; it being a common maxim among Canary fanciers, that it is better to couple a Jonque cock with a Mealy hen, and *vice versa*, as it is alleged the produce of two Jonques are delicate and rotten-feathered, or rough and disordered in their plumage. Though from my own experience, I should rather attribute such defects to breeding in and in—that is, from birds too nearly related, because I have bred from two Jonques and never experienced the inconvenience imputed to such a proceeding.

I am not aware that these birds have any particular property, except it is their rich yellow colour; and they are bred in such numbers to supply the large demand, that they may be obtained at most reasonable prices; so that any one desiring a good singing bird may obtain one, or a pair, at small cost. The Jonque Norwich Canaries are very rich in colour, neat, and compact in shape, strong, hearty, and lively birds. They are also hardy, and require no coddling. They are good singers; but, if anything, perhaps, are rather too noisy. Being so very plentiful, they are, however, not much cultivated by the higher order of fanciers; though they form the principal bulk of the mere bird-keeper's stock, as well as being used by the fancier as nurses for the more tender and valuable varieties, as also for breeding and rearing Mules.

There are, also, a few Pieds of this sort, which are pretty as a change; but from the irregularity of their marking and not breeding true, they are of no value in the estimation of the fancier, except those of a breed of Pieds, which by careful matching and breeding in and in, produce a majority of Pied young ones; and these are bred almost entirely for Pied Goldfinch Mule breeding; or, as it is termed, they are Pied birds, "bred down soft in colour."

2nd VARIETY.

Quakers, Cinnamon, or Dove.

These, like the preceding, are simply a variety of colour, and though not so showy as the Jonque, are valued higher on account of their being less common. In colour they are of a reddish-grey brown, of a very pleasant soft colour, from which their various names of Quakers, Cinnamon, and Dove-coloured Canaries are derived. To be admired they should be whole-coloured, free from white feathers, and as near as may be of one uniform shade, though this varies; being in some paler, in others more reddish, but generally preferred when tinged with a yellowish shade, when they are designated Cinnamon Jonques.

3rd VARIETY.

The Grass, or Parrot Green, or Green Jonques.

This beautiful variety is highly esteemed among fanciers on account of the brightness of its colour; but, at the same time, it is the rarest and most difficult to be obtained, and of late years they have almost become extinct. It is a common custom to call any common dark-coloured Canary that has a little green in its plumage a green Canary, but such are of no value.

The fancy Green, or, as it is usually called, the Green Jonque, is, as its name implies, a bright grass-green, more like a green Parrot, darker and more vivid on the back, but yellower on the breast and under parts. There should be no grey on the back; the quill-feathers of the wings and tail are dull black, but so widely edged with green that when closed the black is scarcely perceptible. Like the foregoing, they should be whole-coloured and not pied or patched.

I believe the Jonque, Cinnamon, and Green, are the only whole colours prized by fanciers.

Marked, Pied, and patched birds, there are of all colours; but however pretty they may appear to the eye of the novice, they are totally disregarded by the fancier, who requires not only beauty but regularity, and the property of reproducing the same marks in the offspring.—B. P. Brent.

(*To be continued.*)

Stothard the Artist, and the Butterfly.—The owners of many a name great in the arts have been enthusiastic collectors of butterflies. Our distinguished countryman, Thomas Stothard, was one of their devotees, and the following anecdote, extracted from his published life, shows how he was led to make them his special study:—"Stothard was beginning to paint the figure of a reclining sylph, when a difficulty arose in his own mind how best to represent such a being of fancy. A friend who was

present said, 'Give the sylph a butterfly's wing, and then you have it.' 'That I will,' exclaimed Stothard; 'and, to be correct, I will paint the wing from the butterfly itself.' He sallied forth, extended his walk to the fields, some miles distant, and caught one of those beautiful insects; it was of the species called the Peacock. Our artist brought it carefully home, and commenced sketching it, but not in the painting-room; and leaving it on the table, a servant swept the pretty little creature away before its portrait was finished. On learning his loss, away went Stothard once more to the fields to seek another butterfly. But at this time one of the tortoise-shell tribe crossed his path, and was secured. He was astonished at the combination of colour that presented itself to him in this small but exquisite work of the Creator, and from that moment determined to enter on a new and difficult field—the study of the insect department of Natural History. He became a hunter of Butterflies. The more he caught the greater beauty did he trace in their infinite variety, and he would often say that no one knew what he owed to these insects—they had taught him the finest combinations in that difficult branch of art—colouring."—*British Butterflies, by W. S. Coleman.*

HARDY FLOWERING HERBACEOUS PLANTS.

(*Continued from page* 91.)

CALCEOLARIA—Slipperwort.

Nat. ord., Scrophulariaceæ. *Linn.* Diandria Monogynia.

Generic Character.—*Calyx* four-cleft, segments ovate. *Corolla* ringent, upper lip small, acute, lower lip slipper-shaped, with involute margins. *Stamens* filaments short; anthers two-celled. *Style* short, stigma rather acute. *Capsule* two-celled, four-valved.

Calceolaria amplexicaulis (stem-clasping). *Branches* suffruticose; *leaves* stem-clasping, ovate-oblong, acuminated, cordate, crenately-serrated, pilose; *corymbs* terminal, flowers umbellately fascicled. 1½ ft. Yellow. June. Peru.

C. arachnoides (cobweb-like). *Stem* herbaceous, branched, spreading, except the corolla, clothed with white cobwebbed-wool; *leaves* ligulately oblong, slightly toothed, narrowing into long winged petioles, connate at base; *peduncles* terminal, twin, elongated, dichotomous. 1 ft. Purple. June. Chili.

C. connata (base-jointed-leaved). *Plant* suffruticose; *branches* and *pedicels* clammy-haired; *leaves* stem-clasping, lanceolate, acuminated, cordate, denticulated, hairy beneath; *racemes* bifid, panicled, or corymbose, flowers usually twin. 2 ft. Yellow. Chili.

C. corymbosa (corymbose or flat-headed). *Plant* hairy; *radical leaves* broad, rosulate, white beneath; *stems* leafless at bottom, but dichotomous and leafy at top; *flowers* corymbose. 1 ft. Yellow. May. Chili.

C. crenatiflora (round-notch-lipped). *Leaves* obovate-oblong, unequally serrated, rather tomentose; *corolla* with lower lip crenated. 1½ ft. Yellow-spotted. June. Chili.

C. flexuosa (zigzag). *Plant* shrubby, rough, covered with glandular villi; *branches* flexuous; *leaves* cordate, unequally and bluntly crenated, petiolate, remote, rough above; *peduncles* axillary and terminal, many-flowered, pedicels umbellate. 3 ft. Yellow. Peruvian Mountains.

C. Fothergilli (Dr. Fothergill's). *Leaves* spatulate, entire, pilose above; *peduncles* scape-formed, one-flowered. 6 in. Orange. April. Falkland Isles.

C. Herbertiana (Herbert's). *Plant* shrubby, much branched; *leaves* oblong, wrinkled, crenated, pubescent, petiolate, alike-coloured on both surfaces; *peduncles* terminal, corymbose, pilose. 6 in. Yellow. June. Chili.

C. plantaginea (Plantain-leaved). *Plant* stemless, pubescent; *leaves* radical, ovate-rhomboid, rosulate, serrated, nerved; *scapes* usually two or three-flowered, pilose; *corolla* lower lip large, hemispherical, upper lip small, bifid. 1 ft. Yellow. August. Chili.

C. polyfolia (Poly-leaved). *Plant* suffruticose, entirely clothed with white wool; *leaves* ovate or oblong, crenated, tapering into the petioles, connate at base; *peduncles* elongated, terminal, dichotomous; *flowers* corymbose. 1 ft. Yellow. June. Chili.

C. purpurea (purple). *Plant* herbaceous; *stems* numerous, erect, branched; *leaves* wrinkled, hispid, radical ones cuneate-spatulate, serrated, quite entire below, petiolate, acutish, stem ones cordate, decussate, superior ones smaller and entire; *corymbs* terminal, many-flowered. 1 ft. Purple. July. Chili.

C. purpurea elegans (elegant). 1 ft. Pale purple. June. Chili.

C. ——— picta (painted). 1 ft. White and purple. June. Chili.

These true species of Calceolaria are, I fear, nearly all lost to the country. I remember at the time of their introduction they were highly valued; but the hybrids have nearly superseded them in public estimation, which is a matter to be regretted. They are nearly quite hardy, but a frame shelter will be advisable. To keep them true, propagate by cuttings in September, in a cold frame in sand, and keep the young plants in frames through winter. Peat, loam, and sand, will grow them well.

(*To be continued.*) T. Appleby.

PROTECTING BROCCOLI IN WINTER.

I find that Broccoli was injured by the frost last winter, and some of your writers or readers impute it to a peculiar season, as if we never had such a bad one before; but I can prove that all who have taken my advice, and acted accordingly, have plenty of good Broccoli this peculiar season; and I am not afraid to say that all who will try my simple rule will never have to complain of a bad season.

Forty years' experience has convinced me that the best way is always the cheapest: those who preserve their Broccoli will have plenty of stalks and leaves to dig in for Potatoes, which have been proved by me to be the very best manure, having produced a better crop than I ever saw from anything else.

When Broccoli plants are full grown dig a hole on the south side as near as possible to the plant; then press the plant down with the foot, and the earth that comes from the second plant place upon the *stalk* of the first. This will prevent the plant from rising, and when the frost sets in it will cover its own weak part, the heart. Those who wish to have a succession of heads, or who wish them to last for weeks, should lay some at the beginning of November and others at the end. Those laid at the end of the month ought to be pulled up, and left in the sunshine or wind for several hours.—Wm. Johnson Neal, *Sweetbrier Farm, Warden, near Biggleswade.*

NEW AND RARE PLANTS.

Grammatophyllum Ellisii (*Mr. Ellis's Grammatophyllum*).

An Orchid brought from Madagascar by the Rev. W. Ellis. Flowers yellow, marked with purple.—(*Botanical Magazine, t.* 5179.)

Cocos plumosa (*Feathery-flowered Cocoa-nut*).

A Brazilian Palm, first introduced many years since by Messrs. Loddiges. See an account of it in The Cottage Gardener, page 7 of present volume, under Von Martius's name of *C. coronata.*"—(*Ibid., t.* 5180.)

Calliandra hæmatocephala (*Red-headed Calliandra*).

"A most lovely shrub," introduced from the Botanical Gardens of Calcutta and Mauritius; but its native country unspecified. Its flowers are splendid, from the mass of scarlet filaments they produce.—(*Ibid., t.* 5181.)

Begonia Bowringiana (*Bowring's Begonia*).

A native of Hong-Kong, not very striking.—(*Ibid., t.* 5182.)

Pteris quadriaurita (*Four-eared Brake*).

This and some of its very beautifully-coloured varieties are here depicted. They are found at Moulmein and various other localities within the tropics.—(*Ibid., t.* 5183.)

NOTES ON HUNGARY AND TRANSYLVANIA.

Vintage in Transylvania.—After about an hour's gallop across some rich green meadows, in which the beautiful Baroness W——— accompanied us,—for the ladies of Transylvania almost rival our own as horsewomen—we arrived at the vineyard, situated on the slope of a small hill. There were about one hundred peasants employed in picking and carrying large baskets of the bright Grapes to a small pressing-house near by. Beautiful groups they formed as we caught sight of them every now and then, half hid among the tall Vines: there were young and old, men and women—the village seemed to have sent out all its

forces for the joyous occasion, and in dresses so picturesque too, that the artist's fancy could have desired no happier union of colour, form, or expression. Leaving the Baroness in conversation with some of the old peasant women, the Baron beckoned us away, and led us alone to see the pressing process. I could not understand this mystery, but, like a wise man, held my tongue, and submitted,—and it was well I did. In a number of large tubs we found a set of almost naked men dancing barefooted, with all their force, to the music of the bagpipes, on the heaps of fruit which the carriers were throwing into them. I did not wonder we were led to this place alone, for except in some of the Silenic processions of Poussin, I never saw so extraordinary a scene. And it is in this manner the whole wine of this country is prepared! The Transylvanians, who are singularly delicate as to the cleanliness of their food, declare that every possible impurity is driven off in the fermentation the wine goes through after, and I was not sufficiently cruel to undeceive them. The great object of all this dancing seems to be to break the Grapes, for they are afterwards subjected to the press. I need not say that a thousand simple mechanical contrivances might be substituted for this nasty process. It is reckoned that one man can dance about two hours, when his feet become so cold that he is forced to yield his place to another. In cold weather, hot wine is often poured over their legs to enable them to hold out longer, and spirits are allowed almost *ad libitum*. But the greatest support of the wine-presser is the bagpipe or fiddle, without which he could not continue his dancing half an hour. During the whole time, he dances the regular national step, and accompanies it with a song, which he improvises as he goes on. The usual termination of the vintage is a supper and a dance for the whole village. Transylvania is a country which will probably one day assume a high rank as a wine-growing district. It is almost entirely laid out in small hills, it is well watered, a great many of its strata are of volcanic origin, and the land itself is rather poor; all circumstances which, united to its geographical position, fit it for the purposes of the wine-grower. Although, even at the present time, no less than one-ninth of the whole population is said to live by the cultivation of the Vine, nothing can be more careless than the actual method of wine-making. All kinds of Grapes are mixed indiscriminately; no care is taken to separate the over-ripe and those yet green from the others; and the process of pressing is, as I have described it, dirty and careless. The cultivation of the Vine is equally neglected or ill-understood. Notwithstanding these disadvantages, however, there are already some score different kinds of wine which enjoy a well-deserved reputation. Their reputation, however, is only provincial, for so little is this country known, that its wines are scarcely heard of, even among the Hungarians. They are mostly white wines, and are remarkable for their bouquet and flavour, as well as for considerable body. They are, perhaps, less strong than the generality of the Hungarian, but they are also less acid and thin than some of the finer white wines of that country. It is very characteristic of the state of commerce here, that there is not a single wine merchant in the country, and when at Klausenburg, we found it difficult to get even a tolerable wine to drink. Every gentleman—nay, every respectable tradesman grows his own wine, and he would rather send a hundred miles off for it, than give hard cash to buy it of another on the spot. Some of the most celebrated wines of Transylvania, and those which it would be most worth the foreigner's while to inquire after, are those of the Szilágyság, the Kokel, and Maros. The wines of the Szilágyság, are celebrated for their strength and durability. They are chiefly white wines of a pleasant flavour, full-bodied, and when new, are very heady. The highest price, in an ordinary year, of the better sorts is about 2*s*. per eimer (sixteen bottles). The best are those of Tasnád and Szördemeter. In the valley of the Maros, the wines of Rozsamál, Malam-Falva, Czelna, Gurészáda, Mácsa, Oklos, and Bábolna, are most sought after; and, again, in the valley of the Kokel, or Küküllö, those of Dombo and Bocás. The Kokel wines are less strong than those of the Szilágyság and Maros, but, perhaps, more wholesome, and equally well-flavoured. Baron W———, when in France, had engaged a French *vigneron* to come and stay with him some years, in order to try if he could make champagne from the Grapes of Transylvania. We had frequent opportunities of tasting the wine he produced, and though it was much too strong and heavy for champagne, it was sparkling and pleasant, far better than the stuff we had often drunk under that name in other countries.

Climate of Transylvania.—Towards the middle of January the cold became excessive. At eight o'clock in the morning of the tenth of that month, the thermometer stood at 22° of Reaumur, or 50° Fahrenheit below freezing. This is a greater degree of cold than has been known at Klausenburg for many years; indeed, it is colder than a common winter at St. Petersburgh. The winter in general, however, is exceedingly severe in Transylvania, and I know no better instance to prove how much other circumstances, besides the latitude, influence the climate of a country. Klausenburg is 13° south of St. Petersburgh, and 5° south of London; yet, owing to its geographical position, it has five months' winter of almost arctic severity. The contrast is rendered still more striking when we recollect that the summers here are so hot as to produce the Grape and Water Melon in the open air. This was the first time I ever felt a really painful cold, and on going out I found it affect my eyes severely. The breath froze on the moustache and whiskers, and though I heard of no noses being lost, several ladies had their ears frozen in close carriages, as they were going out to parties. The bread they brought us in the morning was mostly frozen, and we heard that the *liqueurs* had frozen during the night, and broken their bottles. I was surprised one day to see a peasant, who was talking to another in the square, resting his hand on the head of a roebuck, which appeared so tame that it stood quietly by his side; but in a few seconds, when the men parted, I was still more astonished to see him set the animal exactly in the same position on his shoulders, and walk off with it. In fact, all the game and meat was frozen, and required a gradual thawing before it could be used.

Treading-out Corn.—As we pursued our journey, early as it was in the year, we had several opportunities of remarking the old custom of treading out the corn by oxen or horses, so often and so beautifully alluded to in sacred history. It is commonly performed in the open field where the corn is cut. A flat piece of ground is prepared, by paring and beating till it is quite hard, for the "threshing-floor;" the corn is then strewn over it; and a boy with a long whip stands in the centre, and drives the animals round the ring till the whole is sufficiently cleaned. It is still considered in Hungary the part of a miser "to muzzle the ox that treadeth out the corn." I cannot explain the pleasurable feeling produced by an actual illustration of this kind, simple as it is, of images which have been familiar to the mind from our earliest infancy, but of which we have never felt half the force or beauty till actually before our eyes.

Water Melons.—We were now (near Pest) in the country of Water Melons, and just in the season. Although this delicious fruit keeps but a very short time, and can only be eaten fresh, it is an important article of cultivation here. In addition to the number consumed by the men, children, and pigs,—for the latter often come in for their share before all is over,—a great number is sent by the Theiss and Danube to Pest, Presburg, and Vienna. At Pest, the September fair is called the *Melonen Markt*, from the quantity of this fruit brought up the river at that time. A fine Water Melon, of the size of a man's head, costs about twopence English money on the plains. It is difficult to convey a notion of the luxury of this fruit in a hot climate, and especially in travelling over dusty roads. Some Hungarian writer considers it a special gift of Providence to the Puszta, to compensate for the bad water found there. The common Melons are fine here, and even cheaper than the Water Melons. The wine of the plains is not, to my taste, to be compared to that of other parts of Hungary. It is strong, but it is deficient in that flavour which the mountain lends its Grapes. The Tobacco of the plains is also strong, but considered deficient in aroma. Among the crops most common here, and most strange to the Englishman's eye, are those of Sunflowers and Pumpkins; the first cultivated for the oil they yield, the second used for fattening the pigs.—(*Paget's Hungary and Transylvania.*)

TO CORRESPONDENTS.

Garden Plan (*R. F. S.*).—We must never return plans, nor answer privately. We criticise your plan on the supposition that the house is on the south side of it, at the bottom or opposite the centre between Y and X. You are capital down to H; there change the Musk edging to Perilla for some variegated Geranium. All the rest are good, except the edgings of Portulaccas, which are too small for the other plants. Humeas to be in the centre of the seven beds, instead of in four only. It is a very intricate garden, but, on the whole, well planted.

Various (*B. H. H. H.*).—Your bulb is *Zephyranthes atamasco*, as far as we can make out from a bruised specimen. If the flower-buds are much tinged with purple before expansion, and pure white when they open, it is true *atamasco;* if not, it must be one of the many allied bulbs in Zephyranthes and Cooperia. "Librothamnus diffusus, Grenesia oluso-

calyx, and Euteiia arborescens," must be obsolete names, or too new to get into the broad world of useful knowledge. We can give no guess about them. Your Acacias will all do in pots for many years to come. They are all worth keeping, and will do out of doors planted in the borders all the summer. Many of them change their ways of leafing like the one you name. Some of the Cypresses do the same.

GUANO LIQUID MANURE (*H. Might*).—No guano is equal to the Peruvian, and two ounces of it to each gallon of water are strong enough.

WEEDY LAWN (*Flora*).—Nothing but continued hand-weeding will destroy the Chickweed, Dandelions, and Hawkweed. We fear that you sowed Grass seeds that had mixed with them the seeds of weeds. For instance: The seeds from a hay-loft are sure to introduce such plagues.

GRAPE-BUNCHES TURNING BROWN (*An Amateur, C. F.*).—The roots of the Vines being outside, whilst there is flue heat within the vinery, and the Vines "making wood very fast," point at once to the source of your disappointment. The roots are too cold in proportion to the heat in which the branches are growing, and cannot supply the sap fast enough. If the roots had been inside, and if you had secured slower growth in the Vines by a lower temperature, and more free admission of air night and day, the bunches would not have turned brown. Give more air, and keep the vinery cooler, or your Vines will not ripen their wood so as to give you a crop next year.

GERANIUM, PETUNIA, AND VERBENA CUTTINGS (*E. N. N.*).—They may all be made in September. Trench the ground deeply, and sow Long-horn Carrots; there is yet time to get a crop. By turning the top spit to the bottom, you will bury the vermin. No one can value cow-manure upon such data as you state.

GARDEN PLAN (*J. Ashton*).—Again we have to say, we never arrange gardens, we only criticise the planting submitted to us. You may bed out now.

CHRYSANTHEMUMS IN POTS (*C. G.*).—Pinch off the tops; repot them in larger pots as often as they fill with roots those they are growing in. Water them with liquid manure and soft water on alternate days; and keep the pots, but not the plants, shaded.

CATALOGUE OF FLOWERS, SHRUBS, &c. (*J. O. C., a Young Gardener*).—Don's *Hortus Cantabrigiensis* which can now be bought from 3*s.* 6*d.* to 5*s.*, will suit you. It is in English, though it has a Latin title.

CHASE'S BEETLE POISON (*F. Blake*).—It may kill woodlice, but of this we are not sure, for we do not know whether they will eat it. Slugs will not touch it. Peas ripened in 1859 will do for sowing in 1861; but the plants from them will not be so vigorous as they would have been in 1860.

DESTROYING SLUGS (*H. B.*).—Trench the ground thirty inches deep, turning the bottom spit to the bottom of that depth, sprinkle lime over that bottom spit, and then fill up the trench. Such trenching will destroy all the slugs on the plot so trenched; but they may visit it from adjoining plots, to prevent which, the only remedy is sprinkling lime on the surface, or pegging down a hair rope round the plot, which acts as a *chevaux de frise*.

CUTTING ASPARAGUS (*R. B.*).—If an old stool throws up only very small heads, do not cut any of them; put a litle extra manure to it, and leave it uncut from until next season: it is weak. If some of the shoots are large, and some very small, cut away all those small as fast as they appear, so that the sap may go to promote the serviceable heads.

CHRYSANTHEMUM REGALIUM AS A BEDDER (*J. Lynes*).—Your double yellow flower is *Chrysanthemum regalium flore pleno*, and is as good for beds where the soil suits it, as any Calceolaria, which is about one place out of five or six hundred. It is one of the easiest plants to propagate and to keep over the winter. In most places it grows out of bounds—two to three feet high, and needs to be trained down to the ground. We have had it richer than any other yellow bedder, and we had to cast it to the dogs in another place. It has been often mentioned in the earlier volumes of THE COTTAGE GARDENER. The single form of it is a wild-looking weed like *Chrysanthemum tricolor*, but both of them sport a little, and some very nice things for ribbon-rows might be picked up among them. As a seventh or eighth row at the back of a ribbon-border, and next to tall Dahlias, this *C. regalium flore pleno* standing upright, and its weedy-looking bottom hid by the rows in front of it, would be just right, and the brightest flower one could have so far from the eye. That is the right place for it, or in the centre of a very large flower-bed. You will find it in every good list or catalogue of bedding plants.

SPERGULA SUBULATA.—*Mr. J. A. Summers, Howard Park Nursery, Perry Hill, Sydenham*, will be obliged by "*J. J., Ashwicken*," communicating with him. Mr. Summers wishes to exchange *S. pilifera* plants for plants of *S. subulata*.

LIQUID MANURE TO FLOWERS (*A Great Admirer*).—Apply it by placing the nose of the unrosed watering-pot near the ground among the plants.

FLOWERS BLOOMING EARLY (*Yorkshire*).—The list at page 100 was furnished us by a clergyman near *Bristol*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

MAY 23d and 24th. BEVERLEY AND EAST RIDING OF YORKSHIRE. *Sec.*, Mr. Fras. Calvert, Surgeon, &c. Entries close May 17th.

JUNE 6th, 7th, and 8th. BATH AND WEST OF ENGLAND. At Dorchester. *Sec.*, J. Kingsbury, Esq., Hammet Street, Taunton. Entries close May 7.

JUNE 12th. ESSEX (Saffron Walden). *Sec.*, Mr. Robert Emson, Slough House, Halstead, Essex. Entries close June 1st.

JUNE 20th. THORNE. *Sec.*, Mr. Joseph Richardson.

JUNE 29th. DRIFFIELD. *Sec.*, Mr. R. Davison. Entries close June 23rd.

JUNE 29th and 30th, JULY 2nd and 3rd. SHEFFIELD. *Chairman*, Mr. Wilson Overend, Sheffield. Entries close June 14th.

JULY 18th and 19th. MERTHYR TYDVIL. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

JULY 19th. PRESCOT. *Sec.*, Mr. J. Beesley. Entries close July 7.

AUGUST 22nd and 23rd. SETTLE (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

SEPTEMBER 19th, 20th, and 21st. PORTSMOUTH. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

SEPTEMBER 25th. BRIDGNORTH. *Sec.*, Mr. Richard Taylor, Bridgnorth.

SELL YOUR SPARE CHICKENS.

IT may be some of our readers are disposed to try the market we recommended in our last paper. We advise them to do so at once, if they mean to do so at all. Time is passing, chickens are growing, and every day will make them of less value because more plentiful. Let the chickens be killed in the forenoon, laid out in the coolest place you have till they are quite cold, then put in a hamper of the proper size to hold them, packed in stiff wheat straw, and sent by night mail-train, so that they will be delivered in the market early in the morning. This must be seen to, because if they arrive after market, and have to wait till the following day, they lose their freshness, and with it half their value. To be valuable, especially in warm weather, chickens should reach the market while they are stiff. These precautions are just as necessary for other markets as for London, and when anything is sent for sale, it may as well command the best as an inferior price.

COCHIN-CHINA HENS AS MOTHERS.

I TOLD you I differed from you as to the merits of Cochin-Chinas as mothers. One of mine, hatched in June last, kept her brood for four months. She then laid again, and became broody after laying only a few eggs. She sat and hatched, but the cold killed all her brood but one. A month since she began to lay again. The solitary chicken is always with her, either on the nest, or sitting upon her back. It was hatched on the 27th day of February. When the hen is again disposed to sit I shall be obliged to part them forcibly.—W.

DIARRHŒA IN HENS.

WITHIN the last few months I have lost, at least, a dozen hens (more than half my stock), from a disease which appears to be a severe diarrhœa. Building has been going on during the time, and I imagine it is from something they eat connected with that process. Not, I think, paint. Since they have been shut up, no cases have occurred; but one hen getting loose, was, in the course of the day, seized with the disease. No cocks have been affected. The feathers about the rump get matted together, and a white liquid is constantly passed by the hen.—J. R. W.

[There can be no doubt the hens pick up something that is unwholesome and that scours them. Paint has not that effect; when they eat that, the head and comb turn black, and they die in about twenty-four hours. We have no doubt, if you observe closely, you will ascertain what it is they eat. Your treatment must be—give a table-spoonful of castor oil, and then to give chalk, plain salt, and bread and ale. The feathers that get matted together should be cut off close to the skin.]

GAME COCK WITH NERVOUS AFFECTION OF THE LEGS—YELLOW LEGS IN GAME FOWLS.

SOME little while ago, I purchased a pen of Game (Black-reds), in the north—first-prize birds (at Darlington and Bradford), advertised in your paper by a Mr. Akroyd. Will you kindly answer the following queries, and oblige? After I had them about a fortnight, I observed the cock began to look unhealthy, and showed it especially in his feet and thighs. He throws out his legs in a kind of kicking way, as if they were tied at the top, and he finds it very difficult to walk. He is also very bad in the stomach, and the emissions are of a bad colour. He has been like this more than a month, but has a capital appetite for soft food, grass, &c. I have tried all kinds of medicines (including castor and cod-liver oil), but of little use, and his feathers droop. Can you advise me what to do for him?

Do you consider yellow-legged Black-reds are altogether objectionable in the South and West of England Shows for prize birds?—J. G. PRICE.

[We fancy the cock has been injured in the back. That would account for his difficulty in walking, and the spasmodic action you mention. The disordered state of his bowels may be accounted for by his inability or his lack of inclination to take exercise, and seek proper helps for digestion. The only treatment we can recommend in this case, also, is castor oil given freely,—a table-spoonful every other day, and continued till he no longer passes green slime. He must, when thoroughly purged,

be treated with stimulants, and nothing is better than stale bread and strong beer. Let him be kept dry *and very clean.*

There is no objection that we are aware of, to yellow legs for Black-red Game fowls, and we think they stand quite as well for prizes as any others.]

DUCKS AT THE BATH AND WEST OF ENGLAND SHOW.

There seems a growing disposition to exhibit rare Ducks, and the more beautiful specimens of imported or native Wild Fowl at the different Poultry Shows. At the Crystal Palace Mr. Houghton very wisely admits these birds for competition in pairs; but we are told the Secretary of this Show declines to admit them unless they enter like others—a Drake and two Ducks. We think this is wrong, because all, or nearly all, of these birds pair. To put an extra Duck to a pair is almost to insure her death, certainly to destroy her plumage, and we therefore hope Mr. Kingsbury will allow us to state in a future number that Wild Fowl may be shown in pairs.

MAY DUCKS BE EXHIBITED IN THEIR OWN CLASS AND AS ANY OTHER VARIETY?

Will you be good enough to answer the following question? it being of some importance in the provincial Shows held in this neighbourhood, viz:—

Class 40.—Aylesbury and Rouen Ducks. 1st Prize. 2nd Prize.
Class 41.—Any other Variety of Ducks. 1st Prize. 2nd Prize.

Is an exhibitor entitled to show and take a prize with a pen of Rouen Ducks in Class 41?—A Subscriber and Exhibitor.

[Certainly not. Whenever there is a class for a named kind of fowl to compete in, that kind of fowl is never allowed to compete in the "Any other Variety" class. If it were not so ruled, the "*Any other* Variety" class would have its intention frustrated.]

BEWARE OF THE BROWN-HORNED OWL.

See "Letter Box," page 78. I was born in Suffolk, and I know "billy whit à who-o-o," the White Owl, congregates there harmlessly with the Pigeons; but tell "Deodar," the large Brown-horned Owl is a young Pigeon, Partridge, Pheasant, aye, and even a young Rabbit devourer. When we kept Pigeons in Shropshire, the young ones once on a time went on disappearing mysteriously. We encouraged the White Owls, even by forming holes for them to enter the buildings, for, poor fellows, we knew their only object to be mice, and a quiet day's rest; but some thought they *might* have a weakness for a Pigeon. So a watch was set, and a Brown Owl came and sat over the Pigeon-house door, soon to meet with a worse fate, for all that he told us, than Edgar Poe's "Raven," for the rector's brother, the late Chas. St. John, Esq., then a young man, and, subsequently, the great Sutherlandshire sportsman, shot the night-prowler on his blood-thirsty mission.

On another occasion a Brown-horned Owl which belonged to a neighbouring farmer, wended its way on to a Spruce Fir tree, as near as he could get to the Pigeons' home; but that fellow was a pet, and had got his wing clipped.—Upwards and Onwards.

FOREIGN BIRDS NATURALISED IN OUR WOODS.

A few years ago I introduced in the pages of The Cottage Gardener the subject of importing certain foreign hardy birds into our British woods and parks. Whether my communication led to any practical result I do not know, but I suspect not. At that time I had principally in view that beautiful and hardy bird, the *Loxia Cardinalis*, or *Cardinal Grosbeak*, usually, however, called the Virginian Nightingale. A friend, who was long a resident in America, informed me that these inhabitants of the woods there may be observed in the warmest parts, as well as those where snow covers the ground for long periods. Its bright scarlet plumage would add greatly to variety in the scenery of our pleasure-grounds, as it would thrive anywhere with Blackbirds and Thrushes, as regards food, and is remarkably active and rapid in its movements. The frequenters of the Sydenham Crystal Palace will recollect seeing there a number of specimens of these charming birds, with their enlivening notes and familiar habits. Whether there are distinct varieties I will not pretend to say, but certainly some, though differing in size from others (some smaller, and some larger than a Blackbird), exhibit a similarity in other respects. It is a long-lived bird, and I have heard of one kept in confinement for twenty-five years. I possess a remarkably large specimen which I purchased some fourteen years since, then, as I thought, not a young bird, but so far from remarking any kind of failure, it rather improves in plumage and song as years pass over. For many seasons it inhabited, with other song birds, a small conservatory in my garden, opening into a parlour, into which it delighted to enter, and form one of the party at meals, being not at all particular in its diet. After two or three years I met with a female, and breeding soon followed in some Box bushes placed purposely. Some broods were hatched, but the disturbance from the other birds prevented any young ones from being matured, and soon afterwards the female died. I am informed that they have frequently been reared in this country. To the possessors of a preserved domain, it would be merely a question of a little trouble and expense to turn loose about a dozen pair of the Virginian Nightingales at this season of the year, and the dealers in foreign birds would manage the affair, on receiving instructions, at no overwhelming cost. It delights in frequenting low bushes or shrubberies in the neighbourhood of water, and young natives would at once be at home, and join in the chorus of the woods.—H. T.

EARLY SWARM OF BEES.

Saturday, May 12.—Hived a very fine swarm from a Stewarton of 1858. The swarm was double, and was hived into two boxes, a queen in each, and then united, and is now going on vigorously. I have a Stewarton and a Payne's capped, and the bees at work in the supers. Pretty good this, considering the sort of winter we have had. The stocks have not been fed.—Shirley Hibberd, *Stoke Newington.*

MOVING BROOD-COMB—COATING HIVES WITH CEMENT.

THICKNESS OF WOODEN HIVES.

In your number of November 1, 1859, "B. & W." suggests the forming of an artificial swarm by placing a bar of brood-comb in an empty hive, and placing it on the stand of a strong stock, &c. Would you or he have the goodness to state how long the bar of brood-comb would bear to be in the empty hive (without injury to the eggs), before the bees could be let into it? Could it be conveyed a distance of eight miles?

[M. Hermann says, "A brood-comb may be taken from the mother-hive, but always *with the bees adhering thereto;*" and we should think it might readily be conveyed a distance of eight miles without injury if the weather be warm at the time.]

Mr. Wood, in his book on bees, suggests the coating of straw hives with Roman cement. Would you say, or ask some of your correspondents to say, is it better than paint, and how is it put on?

[Perhaps some of our correspondents who have used Roman cement will kindly answer this inquiry.]

Would "B. & W." or "The Devonshire Bee-keeper," say is half-inch or three-quarter-inch board the best for boxes? Do they consider that bees in half-inch-thick boxes are safe?

[Neither half-inch, nor three-quarter-inch, board, is thick enough for bee-boxes if exposed; but either might do in a well-protected bee-house. Bee-boxes, to bear exposure, should not be less than one inch and a quarter thick.]

OUR LETTER BOX.

Pheasant Malays (*A Constant Reader, Carshalton*).—If you write to Mrs. Carter, whose advertisement you will see in another of our pages, your letter will reach "Ranger."

Young Pigeons (*A Subscriber*).—You need not remove the foul straw from the nest. Both in the wild and domestic state, filth about their nest seems to be never detrimental.

Blackbird with Tumour (*G. S.*).—It is impossible to advise with certainty. It is probably a tumour which requires opening. If it is a glandular swelling, cutting away the feather and rubbing in iodine ointment might be curative.

Glasses or Supers (*B.*).—We always use supers when the form of the hive permits it.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	MAY 29—JUNE 4, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
29	Tu	Whit Tuesday. King Charles II	29.680—29.621	76—47	E.	.34	53 3	2 af 8	56 0	9	2 52	150
30	W	Ember Week. [restored, 1660.	29.659—29.587	75—52	W.	.01	52 3	3 8	12 1	10	2 44	151
31	Th	Anchusa sempervirens.	29.739—29.680	76—45	S.E.	.07	51 3	4 8	30 1	11	2 35	152
1	F	Ligustrum vulgaris.	29.838—29.725	75—52	N.E.	.22	50 3	5 8	50 m 1	12	2 26	153
2	S	Circæa lutetiana.	29.598—29.515	74—55	E.	.03	49 3	6 8	16 2	13	2 17	154
3	Sun	Trinity Sunday.	29.615—29.591	72—57	N.E.	.52	48 3	7 8	rises	☺	2 8	155
4	M	Veronicas, several.	29.759—29.725	75—58	W.	.14	48 3	8 8	40 a 9	15	1 58	156

Metrorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 69.1° and 45.5° respectively. The greatest heat, 87°, occurred on the 3rd, in 1858; and the lowest cold, 32°, on the 31st, in 1857. During the period 148 days were fine, and on 83 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Trench up every spare part of the garden two feet deep; after which give a coat of manure and dig it in, when the ground will be ready for planting with Broccoli, Brussels Sprouts, Cabbages, &c. *Asparagus*, keep the surface of the beds free from weeds; give them good soakings of liquid manure. When the supply from the established beds is abundant, the weakest heads may be allowed to grow. *Beans (Broad)*, as soon as the pods begin to form at the lower part of the stem top the plants, which will greatly forward the cropping of them. Earth up the successional crops after a shower of rain. *Carrots*, sow Early Horn, to draw young during the summer. *Cauliflowers*, supply the early crop liberally with water; if very large heads are required, manure water to be given occasionally. *Celery*, lift the plants from the nursery-bed with a good ball of earth, and plant them out a foot apart in the trench, using a trowel or small fork in preference to a dibble, and give them a liberal supply of water; when they have started into growth to be supplied occasionally with liquid manure. *Cucumbers*, get trenches filled with some fermenting material in readiness for them; expose the plants rather freely to light and air, to prepare them for planting out under the protection of hand-glasses. *Lettuces*, continue at regular and short intervals to tie them up for blanching, and thin out the advancing crops of the varieties of Cabbage Lettuce, which are always best when left to perfect themselves where sown; and if small sowings are made frequently, transplanting will not be necessary. *Melons*, when the fruit is swelling, the soil to be kept in a moist state, free from useless laterals; and decaying leaves to be removed, as when left they only serve as a harbour for insects. *Sea-kale*, thin out the buds, so as not to allow them to crowd each other, and water once or twice in the season with a weak solution of salt and water (two ounces to a gallon of water), which will benefit the plants and banish snails and other insects. *Tomatoes*, plant out against walls or fences.

FLOWER GARDEN.

The changed appearance that vegetation has now assumed is quite refreshing to the sight; with the atmospheric moisture and the increase of temperature it is just the kind of weather most suitable for turning out the bedding plants, and a continuation of it will make an early season in the flower garden. Summer climbers, Heliotropes, and tender annuals may now be planted out with safety. The climbers when planted to be properly secured from high winds; and the warmest and best protected parts of the flower garden to be selected for the tender things. As soon as the beds are all filled and finished off, plant out the odds and ends that are left into the flower-borders. Attend to the staking of Carnations and Pinks as they grow.

FRUIT GARDEN.

When caterpillars appear on Gooseberry and Currant bushes apply dredgings of Hellebore powder when the bushes are wet with morning dew; one application will prove effectual if every part of the bush is properly dusted. When the black fly has attacked Cherry and other wall trees give them thorough good washings with the engine; use pure water for the first time, which will partially destroy the fly; then apply, by the same means, a good washing of soapsuds and clear soot water, and on the following day give another good washing with clean water. The application to be renewed until they all disappear.

STOVE.

The chief requisites for stove plants and Orchids are plenty of atmospheric moisture, thorough cleanliness, free ventilation, and a slight shading in bright sunshine. A free growth to be encouraged, to get their pseudobulbs firm, well up, and ripened betimes. Every attention to be paid to keeping down vermin; nothing short of extermination should satisfy the zealous cultivator.

GREENHOUSE AND CONSERVATORY.

Some of the hardier stock—such as hybrid Rhododendrons, Camellias, and Orange trees in tubs or pots—to be set out of doors to make room for other and more tender plants to display their beauties. A sheltered spot to be selected; but on no account to be placed under the drip of trees. Very young stock of Ericas, Epacrises, and small New Holland plants will do best in a pit or frame with the lights facing the north. Shift some young Thunbergias into their final pots for trellising: these are useful to keep up a late display. W. Keane.

WELLINGTON ROAD NURSERY, ST. JOHN'S WOOD, LONDON.

MESSRS. E. G. HENDERSON AND SONS.

I hasten to make a suitable apology for the sweepstake charge I made on the florists' Tulips at the Crystal Palace. They are not one-tenth so bad as I said—that is, there is not more than one of the florist strain now among every ten of the bedding-class of Tulips at Sydenham, for I went there to see on purpose. I spoke from a four-years-back impression, from what I heard Madame Vander Villamore say of the then collection. I went on Saturday, the 20th inst., to hear the music, to see the Tulips, and to be able to tell a large class of our readers the proper distances of planting bedding plants according to the fashion of the season, and of the latest period; but up to five in the afternoon of the 20th of May, 1860, not a single or a double bedding plant was put out, either in a vase, bed, or border, as far as I could see. The climbers and trainers in the colonnade have been a good deal more closely pruned than formerly. All the plants inside and out look much as they have done in May. *Verticillata* and *Armata* were the only two Acacias which continued out the bloom so late. *Araucaria imbricata* has been browned very little. *Cryptomeria Japonica* suffered very much. Lilacs, Laburnums, Judas trees, and various Sorbuses were in, or just coming into, blossom at the

average time, notwithstanding that, on the 1st of April, some spring-flowering trees at Surbiton indicated six weeks behind time, owing to the long winter. On the 1st of May, however, the evergreen Barberry (*aquifolium*), was not half an hour behind time. But the best school of art for our business is a good English nursery, and when you want to learn how the world goes round, recommend me to go to a London one, and to a fair spinning-wheel, for a good, tough, lasting, long yarn, sound as a telegraphic cable.

In the show-house a whole row of hanging-baskets were suspended from the rafters, covered with Lycopods to make them green, and planted with suitable kinds of uprights, allabouts and trailers. Calceolarias and Fuchsias were the chief uprights, with the *Unique* section of Geraniums. Petunias represent the allabouts, or such as neither grow upright nor trail down in baskets. *Rhodochiton volubile* is one of the best of the old plants for trailing. Linarias, plain and variegated, *Decandra prostrata*, Lophospermums, Maurandyas, Nierembergias, and others, with that exquisitely, deliciously scented, and insignificant bloomer, *Pylogine suavis;* but turn to what is said of it last year. There is a great demand for these hanging baskets. One extraordinary and most useful discovery has been made abroad and confirmed here. Many of the fine-leaved plants from the stove do as well, all the summer, in front halls, lobbies, galleries, and side drawing-rooms, as the India-rubber plant (*Ficus Indicus*), and, in winter, require no more heat than greenhouse plants, if so much. Ropalas are of that class.

In the winter garden—a large cool house here—*Ropala corcovadensis* has stood since last summer, and looks better than in the stove. A pair of them in your lobby, half-way between the front door and the bottom of the stairs, would mark you as being up to the fashion, for several such pairs are now in such places round London. The Green Dragon trees, or Cordelines and Club trees of Australia, all of the Dracæna breed, do just the same way, and half a score more kinds. These collections, or rather four collections of new crossed Begonias with fine leaves, were in one house; two of the collections were English, one from Ghent, and one from Dresden. The latter is the best of the whole. Last year a bed of a cross Begonia held on in bloom, out of doors of course, till that early frost in October last at the Experimental; and now we would make the front line of a ribbon-border all of *Begonia Rex*, if some good Samaritans would be good enough to send them for the experiment; and, better still, pay the carriage of them to London. There are, probably, twenty kinds of fancy-leaved Begonias for edging flower-beds, just as easy as *Flower of the Day*. There are plenty of plants in the nurseries to prove the thing, and no want of money in England when any really good thing is on the move. Of course, there will be some croaking and opposition to this new move, like the rest of them; but give me the plants, and I shall engage to choke the croakers before they can get in chorus. The next choker will be the Queen's favourite *Caladium*, the dear little silver-spotted kind, called *argyrites*, which Her Majesty so praised in St. James's Hall. Well, I shall risk my buttons if that Caladium will not make the best front row for a ribbon-border of all the variegated plants in the world. In the years 1832, 33, 34, 35, and 36 I had Caladiums out the whole summer in Herefordshire, which are and were more tender in their nature than this dear little exquisite; and if I had a couple of hundreds of it now I should not hesitate one moment to ribbon them, but in a few years they will be in the edgings as freely as *Cerastium tomentosum*—one of the oldest things that ever was, though not discovered till the other day to be a bedding plant. This Caladium is increased at this Nursery in prodigious quantities, or soon will be, for this very purpose; for, as the "roots" remain dry all the winter like Potatoes, it will suit most people, and many who can never speculate much on bedding Begonias. There is nothing new in this, only it is known to very few. Our greatest cross-breeder has been bedding new Begonias for ten years, and old Caladiums for nobody knows how long. The next things that met me were Linden's new fine-leaved plants, such as *Campylobotrys regalis*, mentioned last week. *C. smaragdina* is the next best. Another *Cyanophyllum* from Assam (*Assamicum*), is the next thing to *Magnificum*. *Gardenia radicans major* is the best of them all; and *Pteris tricolor* is the most beautifully marked of all the Ferns. There are now three kinds of the new Agapanthus-way-of-growing plant which no botanist has yet properly defined—the *Vallota miniata* of Lindley, and *Imatophyllum* of Hooker; one with Cyrtanthus or drooping flowers, and one a cross between the latter and *Miniata*. The *Cyrtanthiflora* is said itself to be a cross on the continent between *Miniata* and *Clivia nobilis:* if so, *Imatophyllum* is right after all.

One thing was pointed out to me in the home crop at this Nursery, and I never saw, or heard, or read of such a thing before—that was, that the mere act of crossing had altered the position of the seed-pod from an upright position, as it holds in *Miniatum*, to a drooping posture, as it is in *Cyrtanthiflorum*—the most curious thing I ever saw. Among new greenhouse and half-hardy plants, Abutilon *Duc de Malakoff* was pointed out as the best Abutilon.

The Antarctic Forget-me-not is propagated exactly like the Rhubarb, dividing the large roots with a crown-eye to each piece. *Clianthus Dampieri* was still in fine bloom after flowering for months, and they were crossing it with *Puniceum* both ways. This is the most beautiful flower we have, and the most curious plant to cultivate; but done in the right way, as is minutely detailed in the "Illustrated Bouquet," it seems just as easy as *Puniceus;* and they have lots of seedlings of it, and a crop of seed-pods of this season. The new *Rudbeckia grandiflora*, the new Pyrethrums, the new Liliput Dahlias, the new and old Tritomas, and the extraordinary *Spergula pilifera* are all in active demand; but I shall have a Spergula tale of wonders next week.

My *Shrubland Rose* Petunia is beaten at last. They have a new one here called the *Queen*, quite different in looks from *Countess of Ellesmere* and *Marquis de la Fert*, and the marrow of the *Shrubland Rose* in looks and bloom; but the flower is larger, more wavy, the eye larger and brighter, and the Rose more rosy than in my seedling. All that was in-doors, and early in the season, recollect; yet I own being beaten for the first time in my life with cross-bedders.

A fine, white, variegated-leaved Petunia with purple flowers was a good thing. *Gardoqua Hookeri*, a nice old plant which few people can do well. *Bouvardia multiflora* comes nearer the old kind *Triphylla*, and seems a good thing. A superior variety of *Nierembergia gracilis*, so called. *Statice imbricata*, the best of the *Macrophylla* breed; the latter next best variegated *Fuchsia gracilis* and *globosa*. *Gomphocarpus navicularis* blooms all the season out of doors. *Isolepis prolifera*, a hanging-basket plant, which must soon be as common as *Gracilis;* the leaves, or grass, are stouter than those of *Gracilis*, and a new plant begins at the end of each, just like Strawberry plants from runners. *Wigandia corracasana*—a broad, fine-leaved plant, much used out of doors in Paris, though apparently a stove customer. *Goodia rubra verna*, an addition to the fine-leaved section of stove plants. *Cossignia Borbonica*, another fine-leaved good-looking plant. *Muhlenbeckia complexa* is a hardy excellent rock-plant; a great runner, half-shrubby-looking, with very small leaves, which one never sees out of the nurseries. I mention it to say that it is one of the best hanging-basket plants we have; it spreads out in all directions—up and down, and at every angle round the circle. Variegated *Solanum jasminioides* and many fine and curious-leaved Solanums; all of which, stove plants though they be, will grow out in summer

fine as Broccoli, and should stand near rock or ruin, or on the edges of rough ground.

The variegated Bamboo, from China, makes small progress yet. Phlox *Criterion*, a cross between *Drummondi* section and *Depressa*, blooms all the summer. Yellow Ivy-leaf Geranium, a good basket trailer. *Salvia argentea patula*, a most curious, white, large, shaggy-leaved plant, for the frosted silver section at night. *Pimelea spectabilis rosea*, so much better than the species. The new *Torenia pulcherrima* blooms only in the autumn.

Of the new Fuchsias, *Count Cavour* comes the nearest to mauve colour in the corolla. It is, indeed, a most interesting thing, and *Solferino* is a great French favourite, of course, and we shall estem it as the best double kind; then there are *Dr. Livingstone, Garibaldi, Lord Macaulay, Longfellow, Princess Alice, Prince Alfred, Prince Imperial, Prince of Orange*, and *Sir Robert Peel*, all of the newest stamp and mould.

The new Verbenas are legion, but this is too soon. No Verbena or bedding Geranium can be fairly judged before the beginning of June, because when they bloom early in-doors they are so much more intense in the colour. Twenty years back I used to judge my own seedling Geraniums in May, after a slight forcing; in August I had to pull them up by the roots, and cart them out of my sight. *Lantana mutabilis* is one of the oldest plants, and *mutabilis fulgens* here is the best bedder of them all.

There is a good improvement on the Crystal Palace *Tropæolum elegans*, called *Stamfordianum*, a crimson scarlet with the same looks and habit as *elegans*. This will have a run like *Gazania splendens*, of which more thousands have been already sold than there are months in the year. It is also a famous thing to hang round a vase or rustic basket. *Miss Nelson* is also said to be very fine in the way of *elegans*, but I did not see a flower of it. I have seen *Stamfordianum* in full flower, and there is none to beat it. A variegated Canna, with the markings in the broad-band-like-way of *Aspidistra lurida*, will be a fine thing for the exotic looks of some exquisite flower gardens at home, and *Canna Warszewiczii* has a metallic lustre which will dazzle one in the misty mornings of mushrooming in the fields. This has been crossed by the king of cross-breeders, and the seedlings will add a distinct charm to this class as soon as they come into the market. But in these busy times I cannot find room for his majesty's budget till the planting-out is finished.

The new Pinks, *Heddewigii, Verschaffeltii*, and *Laciniatus*, seem quite easy to manage, but the blooms are much larger from the spring-sown plants planted out in rich borders, and there is an excellent verandah or about-the-house trellis, *Clematis*, called *Viticella venosa*. It blooms from the end of summer all through the autumn, with purplish-lilac or Tyrian purple blooms. *Lanuginosa* is still the best Clematis with very large flowers.

The Fern or Lycopod-looking evergreen close-growing shrub called *Chamæbatia foliolosa*, is really a gem of a thing, but is up at a stiffish price yet. Mr. Veitch exhibited dried specimens of the flowers of this little charmer at the Crystal Palace, and you would take them for Mays or Hawthorn blossoms in that dried-up state.

Among bedding Geraniums the variegated class is now the rage, and the new golden-leaved ones are now splendid under glass, such as *Cloth of Gold*, the *Golden Fleece, Golden Vase*, then the *Fairy, Oriana*, and the *Queen's Favourite*, which Her Majesty remarked was the next prettiest plant in St. James's Hall, after the fairy *Caladium*, which is to edge the ribbon-border which is to be. These are all dwarf gems with three or four shades in the leaves. Another class of them represented by *Rainbow, Silver Chain, Picturata*, and *Bouquet*, are still more deeply marked. The best pure white of the horseshoe kind is *Madame Vaucher*, but her madamship was not then in bloom, and they speak very highly of a scarlet Hybrid Perpetual of the Pelargonium section, called *Britannia*, which will rule the roast until a better comes, and *Little David*, is the dwarfest of the *Tom Thumb* breed, and as free as that in bloom; but it would take weeks to go over them all. D. Beaton.

HARDY PLANTS FLOWERING IN MAY.

The following list of hardy-flowering plants were in flower here (west Yorkshire) during the ten days ending May 18th, 1860. I have complied with the wish of your correspondent "H. N. E." in putting down nothing but what I have seen in flower either in my own or my neighbours' gardens; but it cannot be called a correct list of hardy-flowering spring plants, owing to the backward season and variable cold winds.—Rustic Robin.

Aquilegia vulgaris	Narcissus pseudo-narcissus
Allium moly	N. bicolor
Dielytra spectabilis	N. Jonquilla fl. pleno
Soldanella montana	N. odorus
Scilla campanulata	N. poeticus
S. campanulata alba	N. incomparabilis
S. campanulata carnea	N. polyanthus (many varieties)
S. nutans carnea	Fritillaria lutea
S. nutans rosea	F. nigra
Grape Hyacinth (white and blue)	F. meleagris
Convallaria majalis	Lamium maculatum
C. majalis variegata	Trollius Europæus
Ranunculus aconitifolius	T. Europæus alba
R. amplexicaulis	T. Asiaticus
R. acris plena	T. intermedius
Arabis lucida	Caltha palustris fl. pleno
A. alpina	Cheiranthus Cheiri fl. pleno
A. alpina grandiflora	C. Marshallii
A. alpina variegata	Gentiana acaulis
Rhodiola rosea	G. verna
Aubrietia deltoidea	Trillium grandiflorum
Sedum gentianoides	Sanguinaria Canadensis
Saxifraga rotundifolia	Polyanthus (many varieties)
S. granulata	Primula vulgaris plena alba
S. granulata plena	P. vulgaris plena (lilac)
S. umbrosa	P. vulgaris plena sulphurea
S. umbrosa variegata	P. involucrata
Valeriana dioica	P. farinosa
Phlox verna	P. Munroi
Phlox (a pink variety known here	P. cortusoides
Dodecatheon media [as pinnatum)	P. ciliata
Veronica spicata	Statice armeria
V. repens	Bellis perennis hortensis
Myosotis (blue and white)	B. perennis prolifera
Iberis sempervirens	Cardamine pratensis fl. pleno
I. alpinus	Anemone pulsatilla
Leucojum æstivum	A. nemorosa (var. with pink flowers)
Hyacinthus amethystinus	Doronicum Austriacum
Alyssum saxatile	Gnaphalium (red)

EARLY INSECT-DEPREDATORS on FRUITS, &c.

Who that knows what a garden is, but is assured that from the moment the fruit trees begin to blossom he may expect the return of insects? Their certainty, however, at this period reduces the straits to which ignorance of the matter would otherwise expose us, inasmuch as the good gardener is forewarned to "keep his powder dry." It is well known to all experienced persons, that there can be good gardening neither in-doors nor out of doors if insects are allowed to prevail. Witness our exhibition-men with their plants for show, with what jealousy they eye a plant with vermin. Indeed, I have known and helped to reject insect-infested plants otherwise fit to compete well.

In should be remembered in this case, that no tree, or plant, however well grown or prolific, will in these times give satisfaction if insect-ravages are manifest. As fruits come first to hand, let me endeavour to direct attention to their insidious but certain approaches, their immense multiplying powers, and the general or particular consequences of the green fly on fruits and fruit trees. The earliest depredators are, perhaps, these aphides; although the scale seems a perpetual blood-sucker, yet it must surely have some resting period. The first attack of the aphis is generally on the Peach, and there can be little doubt that future generations are stored in the crevices of our walls during winter. Whatever time they begin to produce young, whether warmth determines it, or the budding of the Peach, I am not assured; but I incline to the opinion that they wait with exactness the earliest advent of the Peach leaves, for then they are first manifest to the naked eye. They always thus appear with me just before the trees are out of blossom—this season earlier; and they plagued me much, for I do not like to apply strong things for their destruction until I am assured a crop is set.

So I waited a week later than usual, when they had begun to commit more ravages than I had for years permitted on Peaches

and Nectarines. However, I got old Joe, my vermin killer, to give the trees two syringings of tobacco water, and this has been complete. The first effort of the aphides on the Peach is to distort and curl the young foliage, and this they generally accomplish in a week or so, and within these curls they take refuge. After the foliage becomes curled, it becomes most difficult to eradicate them, and double the quantity of tobacco or other destructive to extirpate them. So here, at least, is one reason for a speedy application. Few duly estimate the damages occasioned by these pests. I once had a wall of Peaches and Nectarines completely ruined in this way; they became full of naked patches, and the lower portions were obliged to be cut away. This is some twenty-five years since.

Apricots.—Persons who esteem this fruit should look well over them from the middle of May until Midsummer. The caterpillars of the Red-bar moth are almost sure to hatch by hundreds during that period. Any one may readily detect their existence without going close to the tree. These rogues roll up the foliage in bunches, and the latter have to be unrolled without bruising, and the enemy crushed without a spark of mercy.

Pears.—These are not particularly liable to insects, but there needs much assiduity from the moment they are in full bloom until they get as large as marbles. A vile caterpillar attacks the young fruit the moment it begins to enlarge. These must be hunted out and destroyed. Pears are in some situations troubled with singular fungi of which there are three or four kinds. I was much troubled with one kind of which I could not learn the name for a few years, and even at this moment I can see their ravages occasionally. The leaf becomes completely blistered over and crumpled, something after the manner of the curl in Peaches, and the pest spreads with amazing rapidity. It threatened at one period, some sixteen years since, to overrun and destroy all the Pears in the gardens, and we were all highly alarmed. I could see no way at the time of averting the evil, but by stripping off every diseased leaf. This I had done with a heavy heart, knowing it would rob the trees of the fruit-bearing principle for a time, which, of course, it did. This plan was persisted in, and annually they became much, very much, less; and I have had the pleasure of seeing my trees full of health and producing good crops of excellent Pears for several years. Doubtless, there may be some better mode than picking off the leaves; but, like all progress, for it time is requisite. But there is another affair which is very serious indeed, and well it is that it is of rare occurrence; but I have known in two first-class gardens within two score miles of here, the Pears either destroyed or paralysed for years through this pest. It is a caterpillar in the interior of the leaf, and which seems to feed on the colouring matter, or chlorophyll, according to learned men. We all know that there is a class of these caterpillars, or grubs as they are commonly called, that possess such habits. The Holly tree is particularly liable to a similar attack in some districts, and the Celery likewise. During the thirty-three years I have been here (Oulton Park), I have never met with them, but when living on Wimbledon Heath previously, my Celery, as also that of many neighbours, was spoiled with it occasionally.

Cherries.—These, as soon as the foliage is developed, are sure to have an attack from the green fly, and there is no securing a crop of handsome fruit without pains. Tobacco should be got to work, or those who like change may try Gishurst; but I can only say, that my man prefers his tobacco paper, which may be had good now. Whether this be prejudice or mere caution I do not know. Like the colour of the chameleon in the fable, each will settle the affair according to his own light.

Plums.—The same may be said of Plums, only the aphis does not usually commence so early with these. Above all, let me recommend that the bull be taken by the horns, that the early attacks of insects be not trifled with. This is the way for a gardener to have a little comfort during the height of summer. This bids fair at present (May 17th), to be one of the greatest fruit years on record, and the wasps are at present pretty abundant, although I have at times seen more. My men have all a penny a wasp for taking them, and very busy they are at meal-times and odd moments. Now, the policy of this will scarcely be called in question in the year 1860; but I am afraid many neglect it. This is like one farmer of clean habits extirpating Thistles with all his might, whilst his neighbour, Dick Careless, takes no notice of them. I do not know how it is, but I have for many years noticed it, and heard experienced men declare the same, that whenever there is a great fruit year, there is sure to be abundance of wasps. Now, if these vile insects would but eat and thin out the young fruit in such cases, it would be well; but they wait until the fruit has robbed the tree.

Let us not forget our old enemy, the red spider, one of the worst enemies of the gardener. It is almost sure to appear on the Peaches and Nectarines, and, indeed, on some other fruits. I have a row of Gooseberries, fifty yards long, which have been half devoured by this spider for three years. I could have extirpated or driven them, no doubt, by sulphur; but my sulphur account is already a consideration, and there are points at which we are obliged to stop with things which swell the garden accounts. Indeed, it is of little avail growing Peaches which cost nearly 1*s.* each, and which, when costly, are almost sure to be inferior. Gardeners, therefore, must partake of the utilitarian principle, and in the matter of fruits and vegetables, endeavour to make them at least equal to the outlay on them.

Flowers are another affair and decorative matters. We might as well scrutinise milliners' bills with an economical eye as think to make ornamental gardening profitable. R. Errington.

DEFECTIVE AZALEA FLOWERS—SEEDS OF PAMPAS GRASS.

I have an Azalea (*decora*), in flower at present; but some of the flowers have not come to perfection, the petals being shrivelled and small, though others, and the greater part, are large and good. There are also some of the flowers pale in colour, and others of a good colour. Can you advise me as to what may be the cause of these defects? There is a very great growth on the plant, and has been for several weeks, or since the buds began to swell. There are from six to twelve strong shoots from the base of each flower from two to three inches and a half in length. These in some measure conceal the flowers, and in some parts press upon the flowers, so as to prevent their opening properly. Should I allow all these shoots to remain? or should I have thinned them long ere now?

Early in spring I sowed some seed of the Pampas Grass. Only three seeds appeared to vegetate. I have nursed these with great care; but they are so like to common Grass in appearance, that I am beginning to suspect that they are from three common Grass seeds that were previously in the mould, and that none of the Pampas seeds have grown. Can you tell me of any marks by which I may know whether the plants are common Grass or Pampas Grass?—J. M.

[Last year, when that Azalea had finished its yearly growth, the weather, or the house in which it stood, was too hot for it, and it was within an ace of making a second or forced growth: that is the reason why the flowers are not all perfect as they should be. The stronger shoots are induced by the same cause. When they are hard enough at the bottom, slip off every one of them with a heel, and make cuttings of them.

You sowed only the chaff of the Pampas Grass, and your harvest will be accordingly. How could you think that a male or female Pampas plant could seed without a partner to cross with?]

MILDEW IN A GREENHOUSE.

What is the best remedy for mildew among Roses, or rather, I should say, among greenhouse shelves? We have been sadly troubled with it for the last two or three seasons. It seems to be confined to one house—the cool greenhouse, where most of the flowering plants are kept. Dredging the plants with sulphur appears to answer for a time—that is, if they are removed to other quarters; but as sure as they are brought back from quarantine, though looking perfectly clean and healthy, it breaks out again, often in the course of a week, and spreads with marvellous rapidity. The gardener attributes the infection to an unusually large stock of Chrysanthemums that were brought there to bloom about three winters ago. The shelves, which are stone, have been repeatedly washed and scoured; and the last cleaning day, about a fortnight ago, they had in addition a dose of sulphur, the effect of which remains to be proved, as all the Roses have been banished for a time.—J. R.

[It is not probable that the fungus, which is the mildew of the Chrysanthemum, will live upon and similarly disease the Rose. It is more likely, as both the flowers named were mildewed in that greenhouse, that from some cause the structure is favourable to the growth of parasitic fungi. What that cause may be, having no information as to the management of the house, we can only

guess. We should clear out all the plants, and whitewash the entire interior with quicklime instead of whitening, and mix flowers of sulphur with it. We should see that the soil of the greenhouse is well drained; and take especial care to have a constant circulation of air, not only in the upper part, but in the lower part of the house.]

EARLY SPRING FLOWERS.

I THINK I have read everything that is to be found in all your twenty-four volumes on spring flowers; and the readers of THE COTTAGE GARDENER should feel much indebted to "H. N. E." for renewing the subject last week in so practical a manner.

If I might suggest an improvement in his list, I would say, let it be arranged alphabetically, with a column for the date when first seen in bloom, and another for a very brief description of the plant.

The list contains some names that I am unacquainted with; and I think does not mention the following, which I have booked among others this spring:—

Full bloom.

Alyssum (purple) ..... 29th April.
Like the common white, but with purple flower.

Arenaria Balearica ..... 10th May.
Very dwarf; almost mossy; distinct white bloom.

Claytonia Sibirica ..... 3rd May.
Single; lilac; straggling; weedy.

Cochleara officinalis ..... 24th April.
White; flat habit; not many leaves.

Epigæa repens ..... 27th April.
Small, white, scented bloom; dwarf; evergreen.

Epimedium macranthum ..... 29th April.
Pale lilac and white; curious trusses.

Phlox verna ..... 4th May.
Rosy bloom, on six-inch stem.

P. frondosa ..... 4th May.
Paler, dwarfer; narrower leaves than *verna*.

Primula ciliata ..... 25th April.
Pale rose; dwarf; plain leaves.

P. marginata major ..... 2nd April.
Lilac; leaves grey, serrated, edged white.

Pulmonaria officinalis ..... 2nd May.
Pink; variegated leaf.

Ranunculus amplexicaulis ..... 29th April.
Single white bloom; yellow centre; grey leaves.

R. montanus ..... 22nd April.
Like a Buttercup, and no better.

Saxifraga palmata ..... 3rd May.
Same bloom as *Steinbergii*, but larger leaves.

S. spatulata ..... 1st May.
White, dwarf.

S. Steinbergii ..... 3rd May.
White; on six-inch stem.

Trillium grandiflorum ..... 1st May.
Single; white; plain green leaves; elegant habit.

Veronica repens ..... 3rd May.
Very dwarf; small, pale blue and white bloom.

The list should be taken to the middle of May (for this part of the country at least), and be carefully verified, in successive seasons both for dates and names. Surely the evergreen *Veronica Andersonii*, the blue *Iris Persica* and *Coronilla glauca* are not hardy bloomers in the open air before May? "H. N. E." includes them.—A CHESHIRE SUBSCRIBER.

DEATH'S DOINGS—CHEAP BEDDING OUT.

SOMETHING more than twelve months ago I had the misfortune to lose my master—and not a master only, but a friend. And although the loss to me was but trifling in comparison to others, yet the many kindnesses I received during nearly six years' service cannot easily be effaced. A single death in a family, particularly when it is the head of the family, very often produces great changes; and when I say he was a gentleman highly esteemed by a large circle of public and private friends for his integrity, benevolence, and general moral and religious worth, and was one that could and did appreciate and reward those virtues in his servants, let each of your readers judge individually the loss of such a master or such a friend.

And changes were to be made in that family, and, no doubt, some of them of a very important nature; but I shall only touch upon a few, and those only that affected myself. How little breaks and changes of this kind serve to illustrate the value we ought to put upon a long life to those indefatigable searchers after knowledge and instructors of mankind, who have toiled from youth to hoary age, and have left a chain of their labours without a link deficient to be taken up and lengthened or strengthened by men equally as indefatigable as they.

The breaking up of the establishment, even to one in my insignificant position, has had its drawback. Everything was brought to a standstill. The lessons that were being taught and the book they were taught from were closed for ever; the experiments commenced and partly carried out were cut short in their various stages; notes made of the past, to be compared with the present and to be linked to the future, were with one stroke of the scythe swept away or of no avail; for in a short time I had to remove from the scene of my labours, and with a heavy heart I left behind so many favourites shining forth in all their gay and glorious splendour. Each bed had a history of its own; and many individual plants would call up associations of the past that almost made them household gods. And, as it were to-day, I am attending to all their varied wants necessary to their health and beauty; and to-morrow they are transferred to another, and to one that only views them in the light of so much extra trouble and expense. And when taking a last fond look, it seemed like leaving behind the better part of myself; but they were of short duration, for the first frost completed their history.

After taking a short holiday, which I very much needed, my lot was cast in a place "run wild." It belonged to a past age, and more resembled a "tapued" district in New Zealand than any other thing I can compare it to. It had been vacant about six years, and held sacred the whole time. The former proprietor resided there for more than half a century, and had no sympathy with fruit, or flowers, or anything pertaining to taste or good order. He could only see trees and shrubs, and they were only for his own hiding, and in that he succeeded admirably; for with what had been planted, and those of spontaneous growth, a complete thicket was formed, and to touch one with a knife was a crime punishable with instant dismissal. There was not so much as a single flower or flower-bed on the premises to remind me of the past; and circumstances occurred that I could not get THE COTTAGE GARDENER for some few weeks at the commencement of the last volume—indeed, to read anything but what was necessary for a pioneer in North America or New Zealand seemed like a waste of time; and the last volume of THE COTTAGE GARDENER I have not seen.

But the other day I met with an old friend that owes much of his present position (which is a very good situation), to the teaching of THE COTTAGE GARDENER when I first took it in; and he sent me his number, which contained a reference to "economical bedding." I had hoped to make, with the assistance of THE COTTAGE GARDENER, a little further progress in that direction; but the above misfortune put a stop to it, as well as all other matters under hand at the time. But now our wild and barren place assumes a different aspect. A good deal of talent and labour have been expended upon it; lawns have been made; shrubs have been planted, and flower-beds have been formed and partly planted; and a ray of hope flits through my melancholy brain occasionally; and I hope to begin again, though it cannot be where I left off—it must be at the beginning so far as materials are concerned. And as it appears that some of your readers would wish to know more of "economical bedding," I will just remind them that they cannot learn it from THE COTTAGE GARDENER, or any other paper, by reading only; because the same plants that will suit one locality will not suit one that is different, and even on the same premises aspect and position are of great importance. Therefore, if it would not appear presumptuous in me to give advice, I would advise those readers to begin as I began, and must begin again—viz., enter in a book, properly ruled for the purpose, the time that every flower on the premises comes into bloom, with the treatment it has had either in pots or in the open ground, and try all manner of reasonable and a few unreasonable experiments to get to bloom anything that may be wanted for a bed or beds by a particular day. Bulbs and hardy annuals will form the chief. A good many of the first-rate men of the present day can get on without them; but I am not up to that mark yet, but am open to instruction. As soon as the new year is in, have an eye to everything that can be seen in bloom; and if it cannot be had, take a note of it, and mark it for the bed it may be used on, so that it may not be

forgotten to be had by the time it is wanted and where it is wanted for. These notes will save a deal of trouble; and if the temperature is taken and booked, it will show the effects of temperature on them in different seasons, and the young beginner will obtain much information that way which will assist him in his future calculations; and the more notes he makes the more interest he will take in his occupation.

Having trespassed on your space to a greater extent than the subject justifies me in doing, I will merely say that I hope some of your readers will tell us of some of the best and most manageable flowers they have kept up a good display with from the end of February to the beginning of May—I mean plants that can be removed when done blooming, to make room for others without injury to the future, annuals excepted.—The Doctor's Boy.

[We are quite sure that many of our readers will join us in welcoming the reappearance of our correspondent, in sympathising with him under his vicissitudes, and in rejoicing that he is again pursuing cheerily his useful course.—Eds. C. G.]

MRS. VERNON GERANIUM.

Will you please say where the *Mrs. Vernon* Geranium, so strongly recommended by Mr. Beaton, can be bought? I have applied to several of the largest nurserymen in London for it, and they say it is worthless, and was thrown out years ago. However, I am anxious to try it, if in existence.—W. G.

[When Mr. Beaton occupied the responsible position of registrar-general to the society for diffusing a right knowledge on bedding Geraniums, Mrs. Vernon herself, the lady after whom that Nosegay is named, called at the office and registered that bedder in terms similar to those you have heard. That was fifteen or sixteen years back, and at that period of our progress, the exact position of the Nosegays was known only to a few. They were worthless to the great body of the people, for not one in ten thousand had then heard of the *Fothergillii* itself. Now, however, no garden of any pretension in the three kingdoms is without this ancient strain, if only *Fothergillii* itself; and if you were to see the ledgers in which prices ranging from £10 to £50 are yearly entered for new kinds of Nosegays, you could perceive one of the results of the workings of our registries. You could also see by The Cottage Gardener, that *Mrs. Vernon* took the highest position at Kew Gardens—that is, up in the highest vases; also, that the preliminary of the stud book was neglected at Kew—no true scarlet having been placed before *Mrs. Vernon* there. But now it is our bounden duty to assert that *Mrs. Vernon* is the most valuable Geranium in England *for the centres of very large scarlet beds*, but not for small cottage beds. For large vases, where a row of the *Crystal Palace Scarlet* could find room round them, *Mrs. Vernon* Nosegay, and *Model* Nosegay will be at the top of the register, as keen rivals for the next two or three years. As you are the first who has made direct inquiry for the first of the new move in Nosegays, Mr. Beaton will lend you a young *Mrs. Vernon* from his own stud for this season, the only one that is yet out of training, if you will send for it by rail to the Kingston Station on the South Western Railway.]

THE PICTORIAL MANAGEMENT OF PLANTATIONS.

Almost every one who calls himself a forester professes to excel in this branch of our rural economy; and yet it is strange in passing through the country to witness in the culture of plantations the great amount of disregard of first principles.

It is usual, and perfectly correct, to introduce coniferous trees amongst our hard-wooded forest trees, as what are called *nurses*, which certainly they are for a time, affording much shelter, and causing the hard-wooded trees to elongate. But never ought it to be forgotten, that if permitted to do this too long, they become the destroyers rather than the nurses of the nurslings. And it is owing to their influence that we so often see poor, wind-waived skeletons of miserable trees, where, if they had been removed in time, we might have had sturdy, robust ones, with good "protecting properties."

I will here state that my object in these remarks is to give a few hints upon the management of plantations for forming future woods, or groups in parks, so that they shall ultimately be effective in a pictorial sense. In this the rule must be different from that where the object is to grow timber only. Trees for ornament will not require to be pruned up to such a height as those of the timber grower, nor must they be left to stand so thickly as those where the object is to get long straight stems only. The grower of trees for picturesque effect will require little aid from the pruning-knife. He may prune for a clean stem up a little above the browsing-line, and then leave his tree to Nature.

It always has seemed to me to be a difficulty in the education of wood managers, that they are very rarely endowed with any knowledge of the art upon which sylvan beauty so much depends, and most rarely do they appreciate those happily picturesque combinations which result from grouping together different objects. Equidistance and regularity are their fixed principles of action, and these are very appropriate in the interior of extensive woods, but quite inapplicable in its margins.

We will suppose a large quantity of mixed wood planted in an extensive place, but a very few years will have elapsed ere the coniferous plants will begin an intrusion upon the hard-wooded trees, and will require a removal. We would urge the importance of this before the said hard-wooded trees become drawn up and weakened, progressively affording the remaining trees every opportunity for their full development; but taking care at the same time to leave many picturesque groups among them. The Firs may disappear progressively, retaining to the last such of them as afford a beneficial shelter.

One great principle in forming beautiful trees is to avoid the mutilation so frequently inflicted by barbaric pruning, or the wounds caused by sawing off large branches, which I affirm can only be justified in cases of accident. A small pruning-knife, the finger and thumb, with the exercise of common foresight, are all the implements that the man of good taste needs to form beautifully picturesque trees.

With regard to the pruning of forest trees. It is, in general, done in an imperfect manner by the mere hewer and hacker of wood with a bill-hook, cutting in a ragged and careless manner, and leaving a stump behind him, which decays, and the live wood overgrowing it, forms, ultimately, a blemish in the tree in the shape of a knob. Too much care cannot be taken to prevent the occurrence of this damage, and I would recommend the adoption of the nurseryman's practice with his fruit stocks, spurring in the shoots to one or two inches in length, and leaving them for a year or two to assist in swelling the stems, after which they may be progressively cut out with a sharp knife, leaving a wound so small as to be soon cicatriced. By this practice a beautifully clean bole is obtained, on which Nature, ever bountiful, will place a picturesque and well-balanced head.

It is astonishing how much variety may be produced by the artistic disposition of trees, even upon a flat surface, whilst upon a hilly surface the most striking effects are much enhanced. Where a place has been thickly planted the most mighty effects are capable of being produced by judicious removal. The often-practised expedient of Brown, of removing the fence from the outside of a wood to sixty or seventy yards within it, and thinning and grouping the Oaks and Thorns on its outside, has, in many places, a charming effect, giving ample variety and intricacy to its outline, while the sombre shade within most fully conceals from view the fence. The great Repton always rejoiced when he had to deal with grounds thickly clad with fine trees, and I could have no more fervent aspirations than to have to deal with a place thus furnished.

In all planting, the proper preparation of the soil by efficient drainage is most important, and it is also important that this be effected by open drains. Most of my readers, I dare say, are familiar with the predilection which roots of trees have for drains, and have noticed the masses of fibrous roots which fill the tiles in shrubbery walks.

Having completed the operation of planting, it may next be asked, At what time should pruning and thinning be commenced? This does not admit of a very definite answer; but it may be said that after two years the eye of the pruner should be exercised over his trees, and with regard to thinning regard must be paid to the progress of the trees, the soil and climate. In good soils and climates it may commence about the eighth year, and in colder ones about the tenth.

In the various routines of business with which I have been familiar, I have always observed the importance of arrangement and plan, and I think that it is of the highest importance to plant systematically. For this purpose I know of no better plan than one given by Mr. Brown, forester, of Arniston. He plants

his Oaks twenty feet apart with other hard-wooded trees, and on each side plants a row of Larches three feet six inches from them, beyond which, at the same distance, is a row of Scotch Firs. As soon as the Larches touch the Oaks, all are removed, and, subsequently, the Scotch Firs having become useful poles, are taken away, leaving, by thinning the row of hard-wooded trees, ample room for the Oaks.

Thus we here see the advantages which result in all the future operations from the systematic way in which trees may be planted; advantages which must simplify the operations of the forester most materially.

In cases where plantations have been neglected, as to pruning and thinning, most mature consideration is necessary, in order to know what should be done for the best. Error arises from neglect of pruning, and the greatest mischief results from pruning too much. Indeed, in cases of some plantations, it is almost impossible to get them right without beginning again, and cutting down all the trees, selecting the strongest of the shoots for the future plant, and paying them all due attention.

In concluding these remarks, I would most specially insist upon the importance of early pruning; and while I would admit no instrument for its performance but the knife, I would materially restrict its use, and remove superfluous shoots in embryo by the finger and thumb. Depend upon it, that early and preventive means are the only correct ones in this art of pruning, and that the great principle of admitting air and light must be fully attended to, if we are to have the fine and characteristic forms of the trees which our fair Island is capable of producing.

Henry Bailey, *Nuneham.*

THE VARIETIES OF POLYANTHUS BEST FOR EARLY BEDDING.

Taking the requirements for a bedding flower to be, that it is a good bright self-colour, with trusses of massive, dense, and abundant bloom, pretty, uniform in height, well thrown above the foliage, and the durability of its gaiety, at least, sufficient to reward the trouble of planting and afterwards removing when more tender rivals are ready and able to bear being turned out, either in place or amongst them. I think, taking these qualities to be needful for an early-flowering plant suitable for bedding, that there is a sport of the Polyanthus which offers very superior attractions for the favour of the parterre gardener. It is not to the race of florist-flowering Polyanthuses, however exquisitely beautiful skill and perseverance have attained for these named sorts, or the usual varieties of "common Polyanthus" that I refer to; but to a sport of this favourite vernal flower, which, with a gratitude adding to its charms, has transformed its sepals into petals, in some instances forming a beautifully coloured flower of nearly as bright a hue as the corolla; but, at the same time, larger. Another most important property in this sport for the object under consideration is, that although the calyx has thus been so completely changed, and become as it were, a corolla, yet it retains the natural quality of the calyx, in being much less fugitive, investing its display with a durability which even the double kinds do not possess. The calyx being thus like a corolla, the quantity of flower is more than doubled when the plant blooms, presenting a density of colour which will make this variety, where it is raised into new and suitable hues, a most desirable occupant of the parterre.

There are a few old varieties of this class; but for the purpose here named I think the best is a yellowish-white one, as it is a most profuse flowerer, and its gay calyx is longer than the corolla, with a foliage neat and not interfering with its floral splendour. This should be crossed with the other sorts which skill and judgment may deem most likely to produce seedlings of new, bright, and decided colours. I may here mention, that seed can be produced with greater certainty if the plants are removed from the border into pots, and so kept in an airy but shady situation, from whence, in case of very wet weather continuing (which often rots the seed-vessel), they may be restored under cover. It is also much easier to apply the pollen to the stigma when the plants are in pots. If the one selected to bear the seed be "pin-headed," no difficulty will arise in placing the pollen upon it; but, otherwise, the best way is to split open the tube of the corolla early enough to clip away the anthers previously to their bursting; and, indeed, the operation with the "pin-headed," would be better if this were also done, as the object of the crossing is more completely effected.

Mr. Henry Wooler, Upper Tulse Hill, about twelve years ago raised some seedlings from seed taken from a large yellow Polyanthus, which had been, as above, crossed with the yellowish-white, "hose-in-hose," named above, and some few of these seedlings were quite like the hose-in-hose, except being yellower, and, like their mother, more robust in growth. Seedlings raised from these have often produced hose-in-hose quite equal to the original yellowish-white parent, but many with a deep yellow and orange flower; and some of these have not unfrequently had a pip, or a few pips, and sometimes a truss with the stamens developed into petals, showing a great disposition to double. A subject both very interesting and instructive is, that about seven years ago, I procured a little of this seed, and have, nearly annually, saved the seeds from plants grown from it; and although it had no further chance of being crossed by the yellowish-white hose-in-hose, yet not only have I yearly had seedlings with the calyx partly, and also fully transformed into petals, but last year one that came, even of a much deeper orange than the original common yellow Polyanthus just bred from, at Tulse Hill, May 16th.—W. Wooler, *Geneva House, Darlington.*

THE ROSE OUT OF DOORS.

(*Continued from page* 98.)

Summer Culture.—*Mulching.*—In dry soils on a gravelly bottom, if a long continuance of dry weather should intervene, a mulching of well-rotted dung will be of great service. It will keep the soil moist by preventing evaporation; and if the dung should be considered unsightly, it might be covered with green moss. All kinds of Roses in light, sandy soils, are benefited by this mulching, whether they be on their own roots, or budded or grafted on any kind of stock. A lady who lived near Uxbridge, and had a fine collection of the best Roses, remarked to me when I called to see her garden, that her beds of Roses, on their own roots, did not thrive or flower well. It was then the month of May, I advised the above mulching, and a good watering in dry weather. This was done, and when I saw them again in August, every one had recovered and put on a most vigorous growth, and several were blooming well. Many of them were of the China and Tea class, and often, in winter, these tender varieties were killed with the frost. The covering of moss was kept on through the winter, and so well sheltered those tender kinds, that very few of them died. The branches, indeed, suffered and required cutting off close to the covering; but when spring arrived they pushed forth strong and grew and flowered most satisfactorily.

Syringing.—After a hot parching day, a gentle syringing is of great service. It refreshes the foliage and washes off the dust, thus clearing the pores of the leaves, and causing a free circulation of the sap. Care must, however, be taken that the water falls not upon the opening blossoms. The buds will not be injured by this gentle artificial shower.

Watering.—If a long drought should take place, the Rose bushes should have (especially in open, sandy soils), a copious supply of water at the roots, more especially just before the blossoms begin to unfold their beauties. For poor, gravelly soils, a watering with liquid manure once a-week, will feed the roots and help the action wonderfully. If my instructions as to mulching have been acted upon, a good watering will enrich the soil, by carrying down to the roots every time it is applied, the dissoluable and enriching salts and gases contained in the dung on the surface.

Tying Standards will require constant attention to keep them well secured, by tying to the stakes. Observe if any of the ties are too tight round the stem, and when they are so, cut the old strings and retie them.

Dead Flowers.—These should be clipped off with pruning-scissors just before they begin to fall. Nothing looks so untidy or careless as seeing Rose leaves littering about on the ground. A very little time spent daily in clipping off dropping flowers, or decayed buds that will not expand.

Insects.—These must be continually warred with and destroyed, but I shall treat more fully upon them under the head "insects," and also summer pruning under its proper head.

Winter Culture.—In the autumn the mulching should be raked off. If moss has been used, it should be gathered off by hand and preserved; the old dung then raked off and leaving the ground bare till all the leaves have fallen, then collect the leaves and give the ground a dressing of rich dung, and carefully fork it in, having the ground rough to receive the benefit of a little

frost. Then cover the ground where tender dwarf kinds are growing with moss again, to keep them alive through the winter. Standard tender Roses may be sheltered by tying some twigs of Spruce Fir round the heads, or even branches of Box or Laurel may be used for this purpose. If any doubt arises as to the hardihood of any kinds on standards, such tender kinds should be lifted up carefully in the autumn, and their roots covered with sand, or mould, either in a deep pit, or even a cold, dry shed. In such a sheltered place, their mature shoots will survive the hard frosts of winter, and when longer and warmer days return, they should be replanted in good, fresh, enriched loam, and properly staked and securely tied. They will then thrive well and bloom finely. By so doing the tenderest (which are often) fine varieties will be preserved.

Pruning.—It is well known to such growers of the Rose as understand and practise the right method of pruning, that there is no point of culture so misunderstood or so utterly neglected. The fact is, there are so many classes of this beautiful flower that require, in order to bloom them well, different modes of pruning, that it is no wonder that serious mistakes are made. The lover and grower of Roses should study the character of the different classes according to their habit, and cut his trees accordingly. He should not cut at random, nor all alike, nor all at one season. In order that my remarks on this point may be easily understood I shall treat of each class as it stands in the best catalogues, and as I have practised myself, the proper way to prune each class. I may first, however, remark, that the best season for the general pruning is as soon as the leaves are fallen in the autumn. In summer the only pruning necessary is to cut out entirely all the coarse, strong, pithy shoots that may appear; they only rob the others, and spoil the shape of the bush. At that season, too, if the tree should send forth a great number of branches so as to crowd the growths in considerable numbers, and thereby prevent the wood from ripening and the buds maturing, I would by all means thin them out whilst young to the extent of half or even two-thirds of the number. On no account, however, shorten in the shoots that are left, because, if that is done, the buds near the cut will break, and form weak shoots which will not ripen, and only waste the strength of the plant. Another preliminary remark may be made, and that is, if a succession of blooms is desired, then prune some in December, some in February, and some in April. Also, all new-planted Roses should not be pruned till the middle of March: the roots will then have gathered up a store of sap, and the buds in consequence will break as freely as those that have never been moved, though the blooming will be a little retarded by this late pruning.

I shall now proceed to describe the right mode of

PRUNING SUMMER ROSES.

Provence and Moss varieties require a rich soil and close pruning—that is, cut off the year's shoots to two, three, or four eyes from the base; on weak shoots leave two eyes; moderate shoots three eyes; and strong shoots four eyes. Some peg down the strongest shoots, but I do not recommend that plan; for such shoots so treated do not flower so finely as if they were cut in to the proper length.

Hybrid Provence.—Some of these are of a vigorous habit, often making shoots three or four feet long. Such shoots should be pruned to three-fourths of their length, all weak shoots cut out, and the rest arranged so as to form equal-sided heads, with room for the next year's shoots to grow and bloom. The rest being moderate growers should be pruned accordingly.

Damask.—These are of a robust habit, and, consequently, require the branches to be thinned out, and the yearling shoots to be left full two-thirds of the length when pruned.

Rosa alba and *Rosa Gallica*, or *French Roses.*—I class these together, because they require the same mode of pruning. Take a bush of moderate size, if the branches are numerous, thin clean out all the weak ones, and then cut in to two or three buds those that are left. They will then flower freely.

Hybrid China.—In regard to pruning, this class is distinct from all the preceding. Such as are strong growers should first have all the small spray and such shoots as have bloomed, and then only just cut off the ends of the shoots that are to remain; others that are weak in habit should, like the others, have the weakest shoots cut clean away, and the rest cut in almost close to the old wood. The Austrian Briar class must be pruned the same way.

Hybrid Bourbon.—Requires a similar mode of pruning to the Hybrid China, excepting not so extreme in either the strong or weak growers. The word "moderately" expresses the mode fully.

Climbing.—Banksian Roses require a wall, and as they flower on a kind of spurs, the young shoots should be encouraged, and laid in their full length, and just the ends cut off. After these have flowered, the whole shoots should be cut out, and young shoots left purposely trained in, and cut the same to flower the succeeding year. This rod-and-spur system is suitable for all climbing Roses, whether they are grown against walls, or on pillars, or wirework.

PRUNING AUTUMN-FLOWERING ROSES.

Hybrid Perpetual.—The pruning of this, by far the most esteemed and finest class of Roses, is the most simple and easy of any. All that is required is to thin out the branches so that the shoots that are left are from three to five inches apart, according to their strength, and then cut in the yearling shoots to two or three eyes.

Isle de Bourbon.—Strong growers thin out, and leave the year's growth from six inches to a foot long. Such as are of weak habit should be thinned out severely, and cut in to three or four buds, according to their strength.

China and Tea-scented.—Dwarfs should be cut down annually almost close to the ground; and standards should be pruned in equally close to the old wood. Both should be protected as described above under the head "Winter Culture."

Noisette.—The pruning of this class is varied according to the habit of each variety: strong growers cut in very moderately, and weak growers pretty close. Some form compact heads, these should be thinned out, the best shoots left and shortened in two-thirds of their length. T. Appleby.

(*To be continued*)

MILDEWED VINES AT CHIPPENHAM.

My attention has been called to an article in The Cottage Gardener of the 8th inst., headed "Mildewed Vines at Chippenham," purporting to have been written by A. J. Ashman, lately in my employ. On reading the article I was perfectly astounded at the gross mis-statements it contained, and particularly the following as to the border: "Oh, everything there is all right, for that every inch of it was done according to the directions and under the eye of Mr. Spencer, of Bowood." I am really at a loss to conceive how the man could have had the intolerable assurance to have published such a falsehood. I beg most distinctly and positively to state that Mr. Spencer had nothing whatever to do in making the border referred to, nor was an inch of it done under his eye or direction, and that he never saw it during the time it was being made. In justice to Mr. Spencer I feel it my duty to give a flat contradiction to Ashman's statement, and I regret Mr. Spencer's name should have been in any way mixed up with a matter which he had nothing to do with.

As to the inarching with the *Golden Hamburgh* Ashman boasts of, and which he says "is driving up the rafter in a most beautiful manner, as strong and luxuriant as any one can desire it to be," I can only say the shoot died, days before the article was published, by his improper and unskilful treatment, and which can now be seen by any person. In fact, as to the treatment of the Vines generally, Ashman is taking to himself more credit than he is entitled to.—Jacob Phillips, *Chippenham.*

WHAT TO LOOK FOR ON THE SEASHORE.

(*Continued from page 70, Vol. XXIII.*)

CHAP. II.—RADIATA.

SEA ANEMONES.

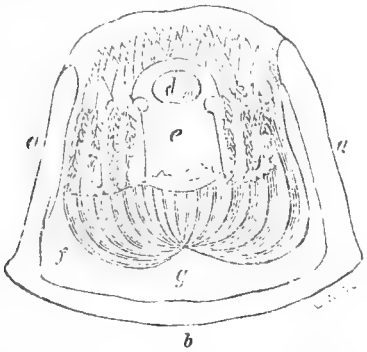
The next order in the ascending scale of animal organisation is the Radiata, so called from the various organs being arranged in a circular or radiating manner. These animals are so far naked that none of them are enclosed in shells; although some have a leathery covering over the proper skin, the bodies of those which are destitute of this protection are extremely soft, transparent, and gelatinous. The Radiata are either entirely free, or attach themselves by suction to fixed objects.

The classes of Radiata which come within the scope of our work are the *Polypi*, or Plant-like animals; the *Acalephæ*, or

Sea Nettles; and the *Echinodermata*, or Hard-skinned animals. We shall commence with the Polypi.

The first species of this class which we shall take into consideration is that strange and beautiful creature known commonly as the Sea Anemone. This living flower, which may be characteristically called the Sensitive Plant of the sea, belongs to the class called Zoophytes or Polypes. There are about fifty species of this singular animal already known; but it is probable there are many more, which future discoveries will bring to light. In its simplest form the Anemone consists of a fleshy bag, which is open at one end only, and which is encircled by a coronal of slender, contractile threads (*tentaculæ*), serving as arms to convey food to the orifice or mouth, and which are surrounded by an inner rim of bright blue beads; whilst the other end of the bag forms an adhesive base by which the creature attaches itself to rocks and other objects it may select for its temporary residence.

A SECTION OF ACTINIA CORIACEA, SEA NETTLE, OR ANEMONE.



a The outer skin.
b The base, or sucker by which it adheres to the rocks.
c The tentacles retracted.
d The mouth.
e The stomach.
f The muscles, and the granules above them are the ovaries.
g The point at which the nerves unite.

Many of them choose deep water, but multitudes may be found on the low-lying rocks from which the tide has receded. They chiefly, however, affect deep pools overshadowed by rocky ledges or fringes of thick weeds. The animal affixes itself to some spot in the shadow, extending its feelers into that portion of the water whereon the sunshine falls. Their colours are as various as their forms—brown, crimson, purple, pink, dark red, green, olive, and flesh colour; the dark red variety occasionally speckled with light green spots. The Anemone, when in repose, presents the appearance of a tremulous, semi-globular button (*oncus*), and in that state may be passed by the inexperienced tourist as a mere coloured mass of jelly; but when the disk with its tentacles is expanded, which happens when the animal is in search of food, it presents the perfect semblance of a flower (*anthus*), and hence its appellation; not, by the way, that it in any way resembles the flower chosen to depict it, being more like an Aster, Daisy, or Marigold in the circular spreading of its rays.

It has the power of locomotion, which it effects by moving a portion of its base, and when that is affixed, drawing, snail-like, the remaining portion after it. It travels, however, at a very slow rate, so slowly that its movement is not perceptible to the eye, being at about the rate of four inches in the course of eight or ten hours.

The Anemones appear to have no special organs of sense, or, if any, they are very obtuse, nor is there any distinction of sex among them. Many species, particularly that known as the *Parasite Anemone*, give out, when handled, a fetid and offensive odour, which is very difficult to get rid of. Whether this be a natural condition, or merely a secretion emitted by them as a protection against the attacks of other animals, man included, is not certain; but they, undoubtedly, manifest other instincts for self-preservation, from the fact that those which are located in the half-submerged rocks, and so more liable to interference, are frequently covered with certain excrescences blurred with dirty yellow spots, and encrusted with sand, shells, and gravel, so as to avoid detection. Whereas those that reside in deep water, and so comparatively out of reach, retain their normal, smooth, and fleshy covering, and display all their vivid and varied colours.

The voracity of these Polypes is excessive, although they can endure the deprivation of food for a considerable time. Their natural prey consists of the smaller molluscs, star-fish, &c., in short of any animal they can manage to seize and retain in their long and slender arms, from which there is no escape. If a very little crab, a fly, or a morsel of meat, be dropped into the water above them, they instantly thrust forth the tentacula and seize it. The prehensile power depending on the presence of projectile barbed thread-like weapons, ordinarily coiled in elastic cells, and which are found in great numbers imbedded in the tissues of the tentacles, and the lips of the stomach. The projection of these threads is sufficient to penetrate the tissues of other animals, and the barbed formation enables them to retain a firm grasp. The arms then, thus provided with their prey, curl over and convey it to the mouth or orifice of the disk; and not only so, but bury themselves with it in the stomach, where, in about twenty-four hours it is digested. The refuse and indigestible parts, such as the shell of the crab and the husk of the fly, being rejected through the mouth covered with a viscous slime.

It is supposed that the tentacles, or the threads imbedded in them, emit a poisonous fluid which destroys the captured victims instantaneously; but if there be anything of the sort, it is more likely to be only such a fluid as paralyses, or stupifies, their prey. If the poison be deadly, it must be supposed to be utterly harmless after ejection, or innocuous to the Anemone itself, seeing that it instantly consumes other bodies impregnated with it. Is it altogether improbable that these barbed threads may possess a certain amount of electricity?

Although the ordinary prey of the Anemone consists of the smallest creatures, it is by no means the case invariably. It occasionally masters and disposes of victims considerably larger than itself. For instance: The thick-horned Anemone (*Bunodes crassicornis*), has been known to devour crabs as large as a half-crown piece, and limpets as big as itself.

The reproductive power of the Anemone is wonderful, for if wounded, torn, or cut into pieces, the fragments will reproduce the parts wanting, and in a very short time present a perfect form again. If, indeed, an Anemone be cut in half horizontally (although, on the mere probability of their possessing any sense of feeling, it would be an act of wanton barbarity), the upper portion will adhere to the rock, close the inferior section of the stomach, and resume its former shape, whilst the lower part will throw out fresh tentacles, which will speedily acquire the power of grasping food, and the animal thus divided will become two complete creatures, retaining their natural forms and discharging their ordinary functions. This is more particularly the case with the smooth Anemone (*Actinia mesembryanthemum*), which is the species most usually found.

The next most common variety, the Thick-horned Anemone (*Bunodes crassicornis*), is more delicate, and does not endure mutilation with the stoical unconcern of its neighbour.

This species may be recognised by the following marks:—It is variously coloured, is rough with glandular warts, tentacles numerous and in three or four series, shorter than the diameter

of the disk, thick and variegated with red and white rings. It has a dark spot on each side of the mouth, and the rim of the border uneven. They will all bear great extremities of heat or cold, but die immediately if immersed in clear fresh water.

The ordinary mode in which the Polypes perpetuate their race is somewhat plant-like: the young budding, as it were, from the surface of the parent animal, and on arriving at full formation, dropping off, and effecting an independent establishment.

The duration of life in the Anemones has not not been clearly ascertained; but they have been known to reach a very respectable age. Mr. Gosse speaks of one in the possession of Sir John Dalzell which had attained the advanced period of five-and-thirty years: this was in 1856. It is just possible that this patriarch may be in existence still.

The Anemone casts its coat, or the gelatinous membrane which covers it, very frequently; and when kept in an aquarium the dead coverings should be sought for, and carefully removed, or they would corrupt the water.

There is a peculiarly repulsive-looking specimen of the Actiniæ, called vulgarly "Dead Man's Fingers," but known scientifically as the *Alcyonium digitatum*. It is tough, fleshy, and shapeless, only exhibiting its beauties under peculiar circumstances. This specimen is very common on our coast. There are many other species of Zoophytes; but those we have mentioned being such as are most commonly met with, and as they all partake more or less of the same characteristics, it would be tedious and unnecessary to enter more fully into their varieties, the general sketch already given being sufficient for ordinary purposes.

One species already mentioned—the thick-horned Anemone—is edible, although, I apprehend, not often put in requisition for the table.

If it be desired to secure an Anemone for the aquarium, great care and delicacy must be used in detaching it from the rock to which it is affixed, for fear of injury to the base. A thin, smooth paper-knife is, perhaps, the best instrument to use; although, in default of that, if due caution be exercised, the finger-nail will answer the purpose by insinuating it gently between the base of the animal and the surface of the rock, and gradually working it off. Perhaps a better plan still is to break off the fragment of rock to which it adheres, which may be done by a smart and dexterous blow with a small hammer. The sooner after removal it is placed in its new home the better.

In conclusion, I would earnestly impress upon my readers not to let their visits to the seaside pass away without devoting some little time to the examination of these curious flower-animals. You have all the opportunity, whether your summer tents be pitched north, south, east, or west, the shore will alike supply you with abundant specimens—a very slight consideration of which will compel you to admit that, wonderful as are the many varieties of Nature's handiwork by land and sea, not the least wonderful among them is the beautiful and fantastic Zoophyte, the Sea Anemone.—W.

(*To be continued.*)

DANDELION AND TEMPERANCE AS GUARDIANS OF HEALTH.

Having had correspondence from several invalid gentlemen readers of The Cottage Gardener, for particulars respecting my convalescent state of bodily and mental health from the free use of the "Dandelion plant as a salad," lately noticed in that paper, I take this opportunity of expressing my hopes that many of my suffering fellow creatures who have the same sad symptoms I have myself experienced and laboured under, will be benefited by duly observing and putting in practice my recommendations contained in that paragraph. I there mentioned "pure water," and "plain bread," as the best accompaniments when feasting upon the Dandelion, and say now to one and all, whether in or out of health (without fear of refutation), that nothing is better and cheaper for the promotion of bodily and mental health than all those three articles combined which I have enumerated. Nothing is safer to preserve health than good plain food (not greasy), a medium quantity at a time to eat, and pure water unadulterated to drink, as often, and no oftener, than hunger and thirst denote our wants, especially the water (not too cold), freely drank and used at least *night* and *morning*, *externally* and *internally*. I myself drink half a pint on rising at five o'clock, and the same quantity at bedtime, ten o'clock, before and after constant exercise in the fields or garden, taking tea or coffee at the usual times, and seldom do I suffer from thirst when heated or fatigued, which not unfrequently happens, being subjected to a heated red face, the result of a determination of blood to the head.

I may also mention, that when overtired from walking and labour, an immersion of my feet in lukewarm water, not colder than the blood itself, for half an hour before retiring to rest, sets me lithe and vigorous on my pins again, quite free from lassitude, and almost forgetful that it is really bedtime, though I am decrepid and advancing to old age (over sixty years). This expedient just before bedtime facilitates sleep in no small degree. I am not an advocate for cold (*too cold*) water, which I fear often chills the blood, and sometimes causes erysipelas, if it is used either externally or internally when a person is overheated, especially if procured direct from a pump or well in summer, when and where (it should be known) it is always colder than in winter. I have tried salt water direct from the sea with good effect; but it is unpleasant to the taste, and cannot be used internally, except medicinally, when it seldom fails to produce good effects, if taken in frequent and small doses, as all medicines ought, and generally are prescribed to be taken. And would that every person throughout the breadth of our land, whether in good health or bad, would indulge himself less in luxuries of all kinds;—then would all be wiser, healthier, better, and happier, although I confess that I, amongst many others, yea, unhappily the bulk of mankind, am too fond of luxuries, simply "*because I like them.*" And, to say the truth, I—sometimes foolishly, and shall I say recklessly? for though I am hardy by nature, and Hardy by *name too*, yet I am *fool*-hardy enough—sometimes let go the reins a little, subjecting myself to imminent danger, not only of reproducing the sad diseases I have suffered from, *i.e.*, biliousness, indigestion, heartburn, torpid liver, costiveness, and hosts of other complaints, all akin, with last, but not least, sad mental derangement arising therefrom; but also the risk of fearful and fatal consequences of a premature death. "This is not the point," it may be said, and has been said to me. "Enough is spoken; close up, do." Suffice to add, then, that I am not a teetotaler, but a staunch moderator in the use of all superfluities. I do not like the name of pledges of any kind, but I am diametrically opposed to the free use of strong drinks, and knowing that we are naturally bent to do that which is evil, or that which we know to be wrong, and that continually, I am also assured that evil propensities are not to be overcome *effectually* without the assistance and grace of God to help us. In short, "I am not my own keeper," and pray let me respectfully and seriously ask, who is?—Abraham Hardy, *Seed Grower, &c., Maldon, Essex.*

NEW BOOKS.

Natural Guanos.*—This is by far the most complete account of all the natural guanos which have been offered to the cultivators of the soil. It gives the history, analysis, and comparative value of twenty-six varieties. It points out the defects of manures sold under the name of guanos, as well as the adulterations to which the genuine guanos are liable, and gives a detail of the best modes of applying them. The following extract exhibits in a forcible manner the comparative value of the usual excrementitious manures:—

"The following table contains analyses of various manures, made by Boussingault and other well-known chemists, and also an analysis of an ordinary sample of Peruvian guano.

	Farmyard Dung.	Horse Dung.	Cow Dung.	Pig Dung.	Mixed liquid and solid excrement of man. (a)	Peruvian Guano. (a)
Moisture	79·30	76·17	86·44	82·00	94·24	18·35
Organic matter ...	14·03	19·70	11·20	14·29	4·72	51·25
Inorganic matter .	6·67	4 13	2·36	3·71	1·04	30·40
	100·00	100·00	100·00	100·00	100·00	100·00
Nitrogen (equal to)	0·41	0·65	0·36	0·61	0 94	13·88
Ammonia	0·49	0·78	0·43	0·74	1·14	16·85

"Boussingault, Payen, and many others of our leading practical agricultural chemists, have come to the conclusion that the value of different manures varies nearly in proportion to the

* *The History and Properties of the different varieties of Natural Guanos.* By J. C. Nesbit, F.G.S., &c. London: Rogerson & Tuxford.

(a) These analyses were made in the laboratories of the College.

amount of nitrogen they contain. There may be cases to which this rule is not exactly applicable; but in many natural manures, an increase of nitrogen is accompanied by an increase in the phosphate of lime, and every other valuable manuring element. In the above table, for instance, the 13·88 of nitrogen in the guano is accompanied by 30·40 parts of inorganic matter, of which 23·60 parts (or more than two-thirds) are phosphate of lime.

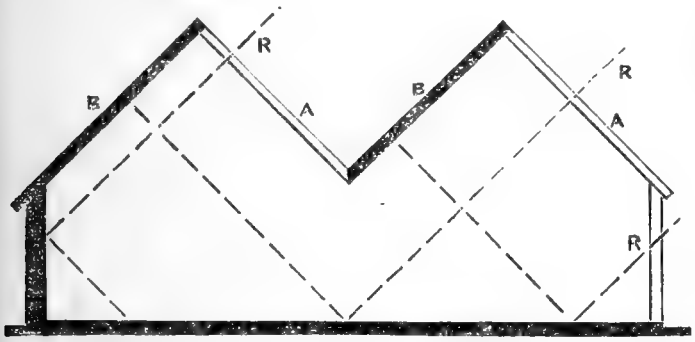
"If we take the per-centage of nitrogen, then, as a correct indication of manuring value, we shall find that one ton of ordinary Peruvian guano is equal to

33½ tons of farmyard dung.	22½ tons of pigdung, and
21 tons of horsedung.	14½ tons of mixed human excrements."
38½ tons of cowdung.	

Index Filicum.*—The seventh part of this useful work has just appeared, and is rendered all the more useful by being illustrated with excellent plates of the genera—a feature which was not found in the preceding portions. The present part brings us on as far as Athyrium.

WASTE OF HEAT IN GLASS STRUCTURES.

Although there is an affinity of object between the Association for the Advancement of Social Science, and my remarks on the waste of heat; they are unconnected as to place and time, and the word *then* in the fourth line of your notice should be corrected to *has*.



The quotation (at page 114), is from my book, "A House for the Suburbs, Socially and Architecturally Sketched," announced in your advertising columns; but, perhaps, I may be allowed to mention here my belief, that the greatest appreciable amount of light may be obtained without the largest possible amount of glazed surface (a proposition with which I am glad to find you concur), and that the best mode of forming roofs on this economising system (I speak not of money but of philosophic principle), is to divide the roof of a long plant-house into ridged compartments, running east and west, and to make all the south sloping-sides, A A, of glass, and to convert the northern slopes, B B, into so many polished, or, at least, opaque reflectors, as in the annexed section, where the rays of light and heat, R R R, are shewn to enter the house, and to be reflected at similar but opposite angles, according to the law of optics, as soon as they strike some repelling surface, such as the floor or wall. I purpose to bring this subject more fully before the public.—Thomas Mooris, *Carlton Chambers*, 12, *Regent Street*.

STRAWBERRIES FOR EARLY FORCING.

As it is a matter of great (and I may say general) interest, to ascertain the best Strawberry for early forcing, I am anxious to give your readers, and "J. T." in particular, all the information I can with respect to Mr. Kearns' forced Strawberries.

You may recollect that I stated that he had two sets of forced plants, both of which were named *Sir Harry*, although there was a difference of ten days between them as to earliness. In point of fruitfulness they were on a par. In habit I could see no difference between them, except that the leaves of the later variety were perhaps a shade the darkest. The early ones were procured from Mr. Niven, of Drumcondra; who informs me, in reply to a query of mine, that as far as he can recollect, he received them from Messrs. Henderson (he does not say which Messrs. H.). The later ones were from Messrs. E. G. Henderson.

Mr. Kearns has just showed me a few plants of each kind in the open ground; the habit of growth seemingly identical, but the same difference exists as to earliness. He mentioned to me that with respect to those procured from Messrs. E. G. Henderson, there was an extraordinary deficiency in runners. This is not at all the case with the others. I should have mentioned that the fruit of the later kind was more of a cockscomb shape than that of the other.

I have not sufficient experience to pronounce with authority which of these kinds is *Sir Harry;* but it is clear to me that for forcing the earliest is the best. When the fruit is ripe out of doors I shall send you, sir, some; and then, perhaps, you will be kind enough to let us know whether the variety is *Sir Harry*, or *Hooper's Seedling*, or what it is; for, whatever its name may be, everybody should have it.

Now, with respect to the quantity of fruit on Mr. Kearns' plants. In spite of "J. T.'s" scepticism, I cannot consent to eat my words. I deliberately repeat, that on one plant (taken down for me to examine) I counted fifty berries, which I believe from their appearance at that time must all have come to perfection; and although Mr. Kearns kept no account of the number of berries he gathered from each pot, yet he says that the crop he gathered this year was quite unparallelled in his experience of Strawberry forcing—and in this department he is no novice. For many years he has forced *Keens' Seedling*, but will never encumber his house with it again—its day is passed.

I never said that his *Keens' Seedlings* this year were a failure. They were very good for *Keens' Seedling*—as good as I ever saw them anywhere; but, with the same treatment, they were not to be mentioned with the other varieties.—Q. Q.

CRYSTAL PALACE EXHIBITION.

The first Horticultural Exhibition of the season came off at the Crystal Palace on Saturday last, and a better day could not have been selected for proving the superiority of that establishment for such a purpose. The rain fell at intervals during the day in perfect torrents; but no obstruction took place in the progress of the Exhibition, nor was there any obstacle to the enjoyment of the company that was assembled.

The new regulations which have been made this year, by throwing all the classes open to nurserymen and amateurs indiscriminately, have proved a perfect success. We may say with safety that there was fully twice the number of plants exhibited on this occasion than was ever got together at any former Show in this country. This is exemplified in the collections of Orchids, of which there were no less than twenty-eight; and what is even more remarkable, there was a total absence of any second-rate collections, the whole being in every respect of first-rate description.

The collections of stove and greenhouse plants were more numerous than we have seen at former Exhibitions; but we cannot say that we observe any improvement in their cultivation, nor were there any novelties among them.

The Azaleas were remarkably fine. *A. variegata* in the collection of Mr. Whitbread, gardener to Mr. Cole, of Dartford, attracted universal attention, and just as we were considering its vast circumference, we overheard our friend Mr. Beaton making a similar estimate, which was to the effect that he thought it might be somewhere about three-quarters of a mile! Another called *Gem*, in the collection of Mr. Carson, but certainly not Mr. Ivery's *Gem*, was a floral pyramid, such as was never seen anywhere before. Not a leaf could be seen, and you could not have put in the point of your finger without touching a bloom. The same may be said of *lateritia superba*.

The Pelargoniums were as good as they have always been, but nothing superior; and this suggests the question, whether or not it is possible to present this class of flowers in a more perfect condition than cultivators have already arrived at. The French spotted varieties seem to have taken a much greater hold on the public taste than our old sorts have done; but we cannot allow that these are of foreign origin, for we recollect fourteen or fifteen years ago the oldest of these was exhibited under the name of *Sanspareil*, and here we encountered that same variety in more than one collection. There was a large collection of the Pelargonium seedlings, but we never trust ourselves to give an opinion on these subjects so early in the season as May, for they have at that time been too much confined under glass to display their real merits.

* *Index Filicum:* A Synopsis of the Genera, and an enumeration of the Species of Ferns, with Synonymes, References, &c. By Thomas Moore, F.L.S. London: Pamplin.

The sun and air of June are necessary to bring out their true tints, and no seedling Pelargoniums should ever be judged before this period.

The pot Roses were magnificent, and Messrs. Lane, Paul, and Francis, ran each other hard for the mastery.

Fuchsias were not abundant, but what there was of them were very good. *Souvenir de Chiswick* was our favourite of the red varieties, and *Venus de Medici* the best of the light ones.

Calceolarias were extremely good, both in the shrubby and herbaceous class.

The collections of fine-leaved and variegated plants were remarkable for the fine specimens and the selection of sorts. We observed several new things in this way, which, along with other details of the Exhibition, will be noticed more fully next week. One plant, however, *Colocasia metallica*, exhibited by Mr. Low, warrants immediate notice. It is a most remarkable and beautiful plant, nearly related to Caladium; and the most familiar description we can give of it is, that the large, dark, metallic-looking leaf is like an elephant's ear cast in shining bronze.

The Ferns were not to be compared to the other collections in the Exhibition, but there were many good specimens among them. There was also a good collection of variegated hardy plants.

The fruit was excellent and plenty of it. Mr. Hill, of Keele Hall, shone particularly in Grapes, which were large, black, and well bloomed. Mr. Henderson, of Trentham, proves himself a worthy successor to Mr. Fleming. His Nectarines and Peaches were remarkably large, handsome, and finely coloured, as were also his Cherries. Mr. Dawson, of Broadlands, near Romsey, was first in Peaches, with very large *Violette Hâtive*, or the *English Galande*: and a second first-prize was awarded to Mr. Williamson, gardener to Viscount Enfield, Barnet, for very large *Royal George* Peaches.

The Strawberries were large and excellent, particularly *Sir Charles Napier*, *Oscar*, and a new variety *Empress*, exhibited by Mr. Smith, of Richmond Road, Twickenham. It is a remarkably fine-looking variety, of a dark red colour like *Oscar* and *Sir Harry*, but we had no means of knowing anything of its flavour.

Next week we shall go more fully into details, meanwhile we append the prize lists, which we have had the greatest difficulty of obtaining; and we would suggest to those who are entrusted with the management of these Shows in future, that they exercise a considerably greater amount of promptitude in issuing the prize lists than they have done on the present occasion. At seven o'clock in the evening there was not a prize list to be seen suspended in the building.

Class 1.—20 stove and greenhouse plants in flower—1. Thomas Whitebread, gardener to Mr. H. Cole, Dartford, 25*l.*; 2. Benjamin Peed, gardener to Mr. T. Tredwell, St. John's Lodge, Norwood, 15*l.*; 3. R. Baxendine, gardener to Mr. W. H. Smallpiece, Guildford, 10*l.*; 4. Thomas Page, gardener to Mr. W. Leaf, Streatham, 7*l.*

Class 2.—10 stove and greenhouse plants in flower—1. J. Green gardener to Sir E. Antrobus, Bart., Cheam, 15*l.*; 2. J. Peed, gardener to Mr. C. T. Gabriel, Streatham, 10*l.*; 3. W. Kaile, gardener to the Right Hon. the Earl of Lovelace, Ripley, Surrey, 7*l.*; 4. W. Cutbush, nurseryman, Barnet, Herts, 5*l.*; extra, O. Rhodes, gardener to Mr. J. Philpot, Stamford Hill, 3*l.*

Class 3.—8 stove and greenhouse plants in flower—1. H. Chilman, gardener to the Rev. W. C. Denshire, Ashstead, 10*l.*; 2. S. M. Carson, gardener to Mr. W. G. Farmer, Cheam, 7*l.*; 3. J. Tegg, gardener to Baron Hambro, Roehampton, and O. Rhodes, gardener to Mr. J. Philpot, Stamford Hill, 5*l.* equal; 4. J. and J. Fraser, nurserymen, Leyton, Essex, 2*l.*; extra, J. Peed, gardener to Mr. C. T. Gabriel, Streatham, 1*l.* 10*s.*

Class 4.—12 stove and greenhouse plants in flower—1. J. S. Green, gardener to Sir E. Antrobus, Bart., Cheam, 7*l.*; 2. Charles Smith, gardener to Mr. A. Anderson, the Grove, Norwood, 5*l.*; 3. W. Laybank, gardener to Mr. T. H. Maudslay, Lower Norwood, 3*l.*; 4. H. Chilman, gardener to the Rev. W. Denshire, Ashstead, and B. Peed, gardener to Mr. T. Tredwell, Lower Norwood, 2*l.*, equal.

Class 5.—12 stove and greenhouse plants, variegated, &c.—1. George Young, gardener to Mr. W. H. Stone, Dulwich Hill, 7*l.*; 2. George Young, ditto, ditto, 5*l.*; 3. Osman Rhodes, gardener to Mr. Philpot, Stamford Hill, 3*l.*; 4. Charles Hutt, gardener to Miss Burdett Coutts, Holly Lodge, Highgate, 2*l.*

Class 6.—16 Orchids—1. William Gedney, gardener to Rev. W. Ellis, Hoddesdon, Herts, 20*l.*; 2. Robert Bullen, gardener to Mr. J. Butler, Woolwich, 15*l.*; 3. Robert Warner, Broomfield, Essex, 10*l.*; 4. Osman Rhodes, gardener to Mr. J. Philpot, Stamford Hill, 7*l.*

Class 7.—10 Orchids—1. S. M. Carson, gardener to Mr. W. F. G. Farmer, Cheam, 15*l.*; 2. Frederick Lovell, gardener to Mr. H. E. Gurney, Nutfield, Surrey, 10*l.*; 3. Samuel Woolley, Cheshunt, Herts, 7*l.*; 4. Robert Warner, Broomfield, Essex, 5*l.*

Class 8.—6 Orchids—1. Robert Warner, Broomfield, Essex, 7*l.*; 2. Robert Bullen, gardener to Mr. J. Butler, Woolwich, and G. H. Bunney, Stratford, Essex, 5*l.* equal; 3. S. M. Carson, gardener to Mr. W. F. G. Farmer, Cheam, 3*l.*; 4. Samuel Woolley, Cheshunt, Herts, 1*l.*

Class 9.—10 greenhouse Azaleas—1. S. M. Carson, gardener to Mr. W. F. G. Farmer, Cheam, 12*l.*; 2. John Green, gardener to Sir. E. Antrobus, Lower Cheam, 8*l.*; 3. Thomas Whitebread, gardener to Mr. H. J. Colyer, Dartford, 5*l.*; 4. Thomas Gaines, nurseryman, Battersea, 4*l.*; extra, J. Peed, gardener to Mr. C. T. Gabriel, Streatham, 2*l.*

Class 10.—6 greenhouse Azaleas—1. S. M. Carson, gardener to Mr. W. F. G. Farmer, Cheam, 7*l.*; 2. Robert Azlee, nurseryman, Stockwell, and Thomas Whitebread, gardener to Mr. H. J. Colyer, Dartford, 5*l.* equal; 3. J. Peed, gardener to Mr. C. Gabriel, Streatham, and William Kaile, gardener to the Right Hon. Earl of Lovelace, Ripley, Surrey, 4*l.* equal; 4. Charles Smith, gardener to Mr. A. Anderson, Norwood, and John Halley, nurseries, Blackheath, 2*l.* equal.

Class 11.—8 greenhouse Azaleas—1. Charles Turner, Royal Nurseries, Slough, 5*l.*; 2. James Ivery and Son, Dorking and Reigate Nurseries, 3*l.*; 3. J. Green, gardener to Sir E. Antrobus, Bart., Cheam, 2*l.*; 4. J. and J. Fraser, Lea Bridge Road Nursery, Leyton, Essex, 1*l.* 10*s.* Extra—J. Ivery and Son, Dorking and Reigate Nurseries, 1*l.*; extra, Thomas Jackson and Son, nurseryman, Kingston, Surrey, 1*l.*

Class 12.—8 Cape Heaths—1. B. Peed, gardener to Mr. T. Tredwell, Lower Norwood, 10*l.*; 2. J. Peed, gardener to Mr. C. T. Gabriel, Streatham, 7*l.*; 3. T. Jackson and Son, nurserymen, Kingston, Surrey, 5*l.*; 4. Thomas Page, gardener to Mr. W. Leaf, Streatham, and W. Laybank, gardener to Mr. T. H. Maudslay, Lower Norwood, 2*l.* equal; extra, R. Baxendine, gardener to Mr. B. H. Smallpiece, Guildford, 1*l.*; H. Chilman, gardener to Rev. W. C. Denshire, Ashstead, 1*l.*

Class 13.—6 tall Cacti—1. J. Green, gardener to Sir E. Antrobus, Bart., Cheam, 5*l.*; 2. W. Young, gardener to R. Barclay, Highgate, 4*l.*

Class 14.—10 Roses—1. A. Paul and Son, nurseries, Cheshunt, Herts, 10*l.*; 2. H. Lane and Son, Great Berkhampstead, 7*l.*; 3. E. P. Francis, nurseryman, Barnet, Herts, 5*l.*

Class 15.—6 Roses—No competition.

Class 16.—10 Pelargoniums, dissimilar varieties, in pots not exceeding 8 in. diameter—1. Charles Turner, Royal Nurseries, Slough, 10*l.*; J. Dobson & Sons, Woodland Nursery, Isleworth, and J. and J. Fraser, Lea Bridge Nurseries, Leyton, Essex, 7*l.* equal; 4. John Tandy, gardener to Mr. E. Saunders, Wimbledon Park, 2*l.*; extra, Thomas Windsor, Hampstead, 1*l.*

Class 17.—8 fancy Pelargoniums, dissimilar varieties, in pots not exceeding 8 in. in diameter—1. Charles Turner, Royal Nurseries, Slough, 5*l.*; 2. J. and J. Fraser, Lea Bridge Nurseries, Leyton, Essex, 4*l.*; 3. J. James, gardener to Mr. W. F. Watson, Isleworth, 3*l.*; 4. James Weir, gardener to Mrs. Hodgson, the Elms, Hampstead, 2*l.*

Class 18.—Newly introduced or extremely rare Plants, hardy or exotic—1. H. Low & Co., Clapton Nursery, Clapton, 5*l.*; 2. H. Low & Co., 3*l.*; 3. H. Low & Co, two prizes, 2*l.* equal; 4. William Gedney, gardener to Rev. W. Ellis, Hoddesdon, Herts, 1*l.*; extra, William Barnes, Camden Nursery, Camberwell, 10*s.*

Class 19.—Seedling Pelargoniums, 1859—1. Charles Turner, Royal Nurseries, Slough, 1*l.*; 2. W. Rollison & Sons, the Nurseries, Tooting, 15*s.*

Class 20.—6 Cinerarias, in pots not exceeding 11 in. in diameter—1. J. Dobson & Sons, Woodlands Nurseries, Isleworth, 3*l.*; 2. Charles Turner, Royal Nurseries, Slough, 2*l.*

CUT FLOWERS.

Class 21.—24 Tulips, dissimilar—1. Chas. Turner, Royal Nurseries, Slough, 2*l.*; 2. B. H. Betteridge, Abingdon, Berks, 1*l.* 10*s.*; 3. Thos. Westbrook, Abingdon, Berks, 1*l.*; 4. Nathl. Norman, Bullfield, Plumstead, 10*s.*

Class 23.—24 Pansies—1. J. James, gardener to Mr. W. F. Watson, Isleworth, 1*l.*; 2. Edwd. Shenton, Hendon Park Nurseries, 10*s.*; 3. J. James, gardener to Mr. W. F. Watson, Isleworth, 7*s.* 6*d.*; 4. James August, Rose Cottage, Beddington, 5*s.*

Class 24.—Miscellaneous—J. H. Elliott, gardener to Mr. C. Davidson, Sydenham Hill, 2*l.*; Henry Lavey, gardener to Mr. E. A. D. Grave, Fetcham, 2*l.*; J. T. Salter, gardener to Mr. A. Sillems, Sydenham, 1*l.* 10*s.*; Carl Pferadorff, Kensal New Town; 1*l.*; Charles Turner, Royal Nurseries, Slough, 1*l.*; John Preston, gardener to Mr. J. W. Jewitt, Brixton, 1*l.*; J. Halley, Blackheath Nurseries, 1*l.*; J. Burley, Godstone, Surrey, 1*l.*; J. Burley, 1*l.*

FRUIT.

Class A.—Pine Apple, single fruit of any kind—1. Not awarded; 2. T. Page, gardener to Mr. T. Leaf, Park Hill, Streatham, 3*l.*; 3. James Drewett, gardener to Mr. Cubitt, Denbies, Dorking, 2*l.*; 4. James Drewett, do., 1*l.*; extra, W. Laybank, gardener to Mr. T. H. Maudslay, Knight's Hill, Norwood, 10*s.*; do. Walter Davies, Starch Green, Hammersmith, 10*s.*

Class B.—Grapes, black, single dish—1. A. Henderson, Trentham, Staffordshire, and William Hill, gardener to Mr. R. Sneyd, Keele Hall, Staffordshire, 3*l.* equal; 2. James Tegg, gardener to Baron Hambro, Roehampton, 2*l.*; 3. W. Barnes, gardener to Mr. T. Barnett, Salway Hall, Woodford, 1*l.*; extra, J. Euston, gardener to Sir J. Duckworth, Bart., Wear House, Exeter, and H. Baker, gardener to Mr. J. Harrison, Belgrave, Leicester, 10*s.* equal.

Class C.—Grapes, white, single dish—1. J. Embry, gardener to Mr. A. Mess, Chadwell Heath, 3*l.*; 2. J. Euston, gardener to Sir J. Duckworth, Bart., Wear House, Exeter, 2*l.*; 3. C. Powell, gardener to Dr. S. Newington, Ridgway, Ticehurst, Sussex, 1*l.*

Class D.—Grapes, 10 lb. weight.—1. W. Hill, gardener to Mr. R. Sneyd, Keele Hall, Staffordshire, 3*l.*; 2. T. Frost, Preston Hall, Maidstone, 2*l.*; 3. H. Smith, St. Margaret's Gardens, Isleworth, 1*l.*; 4. C. Powell, gardener to Dr. S. Newington, Ridgway, Ticehurst, Sussex, 10*s.*; extra, J. Euston, gardener to Sir J. Duckworth, Bart., 10*s.*; ditto, C. French, Burnham, Maidenhead, 10*s.*

Class E.—Peaches, single dish, one kind only—1. T. Dansen, Broadlands, Romsey, and Mr. Williamson, gardener to Viscount Enfield, Wrotham Park, Barnet, 3*l.* equal; 2. A. Anderson, Norwood, 2*l.*

Class F.—Nectarines, single dish, one kind only.—1. A. Henderson, Trentham, Stafford, 3*l.*; 2. J. Peacock, gardener to Mr. J. S. Crawley, Stockwood Park, Luton, Beds, 2*l.*; 3. E. Robinson, gardener to Mr. Benyon, M.P., Englefield House, Reading, 1*l.*

Class G.—Melons, green-fleshed, single fruit.—1. W. Kaile, gardener to Right Hon. Earl Lovelace, East Horsley Towers, Ripley, 2*l.*; 2. J. B. Whiting, Deepden Gardens, Dorking, 1*l.*; 3. J. Taplin, gardener to Rt. Hon. Lord Hatherton, Teddesley Park, Stafford, 10*s.*

Class H.—Melons, scarlet fleshed—1. B. Peed, gardener to Mr. T. Tredwell, St. John's Lodge, Lower Norwood, 2*l.*; 2. T. Bailey, gardener to Mr. T. T Drake, Shardeloes Garden, Amersham, 1*l.*; 3. J. Tegg, gardener to Baron Hambro, Roehampton, 10*s.*

Class I.—Cherries, single dish—1. A. Henderson, Trentham, Staffordshire, 3*l.*; 2. A. Henderson, 2*l.*; 3. A. Henderson, 1*l.*

Class K.—Strawberries, single dish—1. R. Smith, Richmond Road, Twickenham, 4*l.*; 2. R. Smith, 3*l.*; 3. R. Turner, Royal Nurseries, Slough, 2*l.*; extra, J. Widdowson, gardener to Mr. C. A. Barnes, Chorley Wood House, near Rickmansworth, 10*s.*

Class M.—Miscellaneous—J. Williams, gardener to Mrs. Warner, Hoddesdon, Herts, 1*l.*; J. Shepherd, gardener to Mr. J. Berners, Woolverstone Park, Ipswich, 1*l.*; J. Jones, gardener to the Right Hon. Lord Southampton, Whittlebury, Northampton, 10*s.*; J. Widdowson, gardener to Mr. C. A. Barnes, Chorley Wood House, near Rickmansworth, 10*s.*; J. Williams, gardener to Mrs. Warner, Hoddesdon, 10*s.*

THE HORTICULTURAL SOCIETY.

An Ordinary Meeting of the Society, for the election of Fellows and Ballot for Plants, was held on Tuesday, May 22nd, at the Museum of Science and Art, South Kensington, by permission of the Lord President of the Privy Council; J. J. Blandy, Esq., Vice-President, in the chair.

The Chairman having intimated that His Royal Highness the Duke of Cambridge had been pleased to signify his wish to become a Life Member of the Society, the usual method of ballot was dispensed with in this instance, and his Royal Highness was elected by acclamation.

The following ladies and gentlemen were afterwards elected Fellows:—Mrs. E. Eddison, 65, Inverness Terrace, Bayswater, W.; Sir Charles Knightley, Bart., Fawsley Park, Daventry; Rev. T. W. Franklyn, 55, Onslow Square, W.; Charles Paget, Esq., M.P., 113, Eaton Square, S.W.: Lady Ashburton, 82, Piccadilly, W.; Mrs. J. W. Burmester, 17, Princes Terrace, S.W.; D. C. Majoribanks, Esq., M.P., 29, Upper Brook Street, W.; Mrs. Newman Smith, 34, Great Cumberland Street, W.; Mrs. M. W. Savage, 13, Kensington Gate, W.; Thomas Newall Arber, Esq., 40, Upper George Street, Bryanstone Square, W.; Robert Pulsford, Esq., 6, Upper Belgrave Street, S.W.; Samuel Sanders, Esq., 27, Sussex Square, Hyde Park, W.; Lady Filmer, 90, Eaton Square, S.W.; Mrs. Chesterfield Gayford, 1, Southwick Place, Hyde Park, W.; Mrs. Bailey Denton, Woodfield, Stevenage, Herts; The Earl Grosvenor, M.P., 28, Princes Gate, S.W.; The Earl Spencer, Spencer House, St. James's, S.W.; The Countess Spencer, Spencer House, St. James's, S.W.; James Cawley, Esq., Nutfield, Surrey; William David Howard, Esq., Bletchingley, Surrey; F. B. Bernard Natusch, Esq., Erith, Kent, S.E.; Ralph Neville Grenville, Esq., 11, John Street, Berkeley Square, W., and Butleigh Court, Somersetshire; Robert Broadwater, Esq., 3, Billiter Square, E.C.; H. G. Poole, Esq., 4, Old Burlington Street, W.

The ballot for plants was then proceeded with. It appeared that 337 Fellows had given notice of their desire to share in the distribution. Of most of the plants there were a sufficient number to supply all the applicants; but for several a ballot was necessary in order to determine who should have them.

A Meeting of the Floral Committee of the Horticultural Society, was held on Thursday last, J. J. Blandy, Esq., Vice-President, in the chair.

A large collection of cut flowers of Rhododendrons, was exhibited by Mr. Standish, of Bagshot, many of which were very beautiful. The same gentleman also exhibited six standard Rhododendrons, all of which were new varieties. The best of these was *Amilcar*, which has a fine truss, flower of good form and substance, and in colour the finest purple in all the family, with spots dark as those of a Pelargonium. To this a first-class certificate was awarded. *Maculosissimum* is a very showy variety, of a fine rose colour, thickly spotted on all the petals, in the way of Leopardi; this also received a first-class certificate. *Rosabella*, light cerise rose, finely spotted, and very beautiful. This received a certificate of commendation. *John Gair*, a fine, large, pyramidal, compact truss, flowers large, but not sufficiently developed to show its true character as to shape; but promises to be a fine thing. *Anadyomene*, large compact truss, flowers a very pale rosy-lilac, spotted pale brown, almost white, of fine substance and shape. Taken by itself it looks "washy," but in a group it will be an effective object. *Amphipyros*, large truss, flowers dark red, of fine substance, but uneven in outline.

Mr. Rogers, of Letton Hall, Norfolk, sent a white variegated-leaved scarlet Geranium, *Hon. Mrs. Gurdon*, which is of a strong habit of growth. The specimen was well grown.

Mr. Frost, of Preston Hall, sent a seedling *Erica Prestoniensis*, which was not considered an improvement on existing varieties.

Azalea Beauty of Kent, sent by Mr. Stanley, was similar to but not so good as *Rosea alba*.

Mr. Kinghorn, of Richmond, sent a seedling *Azalea Mars*, of fine shape, and brilliant orange-scarlet colour; to which a certificate of commendation was awarded.

Robert Warner, Esq., sent a well-grown plant of *Cattleya Mossæ alba*, as an unusual variety; and it was considered too like a similar variety raised at Sion a few years ago, to be regarded as a new plant.

Mr. Barter, gardener to Thomas Lennox, Esq., of Hammersmith, sent a seedling Geranium, *Golden Gem*, which appears to be a strong grower, and a larger form of *Golden Chain*.

Mr. Veitch, of Chelsea, *Hemerocallis disticha fl. pleno*, a beautiful half-hardy herbaceous plant. Supposed to be a native of China, but introduced from Mauritius. It is perfectly double, and contains four rows of fully developed petals. This received a first-class certificate. The same gentleman also sent *Cissus cordifolius* (?), a fine-foliaged plant, with large, cordate, convex leaves, with a fine, bright, velvety-green surface when first expanded; but which becomes dull green as they acquire greater age. To this a certificate of commendation was awarded.

TO CORRESPONDENTS.

Bretagne Cow (*Mary*).—One in calf costs £13, and if near the time of her calving, £12. If you write to Messrs. Baker, Half-Moon Passage, Gracechurch Street, London, E.C., they will give you any information you may need.

Roots on Vine-stems (*E. N. N.*).—The roots on the stem of your Vines, of which you enclose a specimen, merely indicate the health and vigour the Vines are in. Let them alone.

Spergula—Grubs (*A Subscriber, Sligo*).—It looks very much like *pilifera* drawn up by heat or some confinement. If it is a natural growth it is one of the Saginas. These things can only be guessed at in the absence of flowers. Your pest is the wireworm, and slices of Carrot or the midribs of Cabbage leaves, stuck here and there in the ground near the plants will entice them. They bore into these and lodge next their thus easy way of getting at their favourite fresh vegetable food. Draw up the enticers every morning and the grubs will come up with them. Any green vegetable stalks will do, and so will Potatoes, Turnip slices, Parsnips, and such things; but of all things they relish the fleshy-fanged cast-off roots of old Dahlias best, and all these will do as long as they keep fresh. We once conquered an army of them in one week with two dozen of small Potatoes, with a skewer stuck into each, so as to lift them out of the ground by, and to know where they were buried.

Tenant Removing Fruit Trees (*J. Hunter*).—Although planted at his own expense, a tenant, unless he is a nurseryman, has no right to remove fruit trees. This was decided long since by a superior Court of Law, and no decision at Liverpool would overrule that decision.

Catalogue of Plants (*J.*).—We know of none better for your purpose than Donn's *Hortus Cantabrigiensis*.

Turnip Fly (*Moorelands*).—Your seedling Turnips, Radishes, and Cabbages are suffering from the attacks of the Turnip Fly, or rather Beetle (*Haltica nemorum*). It is very defiant of all practical remedies. Sprinkling over the surface of the bed a little gas lime might banish them until the seedlings had acquired a rough leaf. They are then safe. Quick growth by having the soil moist is to be aimed at.

Rough Glass (*A Country Gentleman*).—Use it for the roof to your greenhouse. Blinds are not needed if due attention is paid to giving air and watering.

Planting a Thicket (*W. B.*).—Half a dozen kinds of the free-running Roses, *Ayrshire* and *Sempervirens*, as *Ruga*, *Dundee Rambler*, *Félicité perpetuelle*, *Princess Maria*, and *Garland*, to cover the scrubby ground, and to bloom early in June, would be a good contrivance. A few bushes of the *Berberis aquifolia* just outside the run of the Roses, to bloom early in May; and the varieties of the common Nasturtiums or Tropæolums would be far better than any of those you have named. Supposing some of them would do, as Lophospermum and Eccremocarpus, that is not just the kind of place for them. The one-half of the effect of garden decorations of all kinds lies in their being in the right places. For the shaded side nothing is so appropriate as conspicuous variegated something—say a dozen of *Cineraria maritima*, which did not lose a leaf or a point with ourselves last winter in such a place; and some Golden Hollies, Variegated Arundo, and Variegated Mint allowed its own way. At all events, avoid shabby gentility by putting fine half-hardy things there.

Propagating Wistaria sinensis (*W. H. B.*).—The Wistaria will not pay for striking by cuttings, and only one in a thousand can root it that way. The way to do it is by layering the young shoots of last year. And you may do that now; but it is generally done in March and April, and at the end of twelve months the layers are fit to take off, but it will do perfectly well if done up to Midsummer. Make a deep, long tongue to each layer, and put some light sandy compost under it to facilitate the rooting. The work is much easier than layering Carnations.

Errors in a Portion of our Present Number.—At p. 135, col. 1, line 17, from top, read "Actinia coriacea;" and line 19, for "The nerves," read "The muscles."

Prunus sinensis flore pleno not Flowering (*H. B.*).—You certainly overworked the young growths of last year some way or other, else it would bloom as freely as a common Plum. It was a great pity; for it is a beautiful thing, and as free a bloomer as any shrub we have. You must not indulge it so much this season; but that way of mibbling pruning may not suit it; at least, we should be sorry to try that method on a young plant. We would not touch it in the way of pruning till it arrived at a fair blooming size.

Fuchsias (*F. G.*).—We do not know *Little Treasure* Fuchsia. *Little*

Dorrit, and *Little Bo Peep*, are two red ones with violet corollas. From four to five feet high, and nearly as much across at the surface of the pot, and rising in the shape of a cone or pyramid, is about the form for a London exhibition Fuchsia.

Names of Plants (*T. S. B.*).—Your double white Saxifrage, is *Saxifraga granulata flore pleno.* (*E. R. P.*).—The blossoms from your two shrubs are both those of the Bird Cherry, *Prunus padus.* (*Mrs. S.*).—It is a large-leaved Salvia, but from a leaf we cannot tell which. It is very similar to a leaf of the common Clary, *Salvia sclarea.* (*An Amateur*).—To save trouble, why did you not number your plants? The little light purple flower is *Dodecatheon integrifolium*, a native of North America. The white flower is Summer Snowflake, *Leucojum æstivum*, a native of Britain. The yellow flower is the double-creeping Crowsfoot, *Ranunculus repens* var. *pleno*, a native of Britain. (*Mrs. C. B. Clough*).—Your plant is the *Trichonema Columnæ* of Babington's Manual, and *Trichonema bulbocodium* of most authors, and *Ixia bulbocodium* of old, the channel-leaved Trichonema, or small wild Saffron, found in a wild state only in Devonshire, in one place plentiful; also in Guernsey. It is a rare plant.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

June 6th, 7th, and 8th. Bath and West of England. At Dorchester. *Sec.*, J. Kingsbury, Esq., Hammet Street, Taunton. Entries close May 7.
June 12th. Essex (Saffron Walden). *Sec.*, Mr. Robert Emson, Slough House, Halstead, Essex. Entries close June 1st.
June 20th. Thorne. *Sec.*, Mr. Joseph Richardson.
June 29th. Driffield. *Sec.*, Mr. R. Davison. Entries close June 23rd.
June 29th and 30th, July 2nd and 3rd. Sheffield. *Chairman*, Mr. Wilson Overend, Sheffield. Entries close June 14th.
July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.
July 19th. Prescot. *Sec.*, Mr. J. Beesley. Entries close July 7.
August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.
September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.
September 25th. Bridgnorth. *Sec.*, Mr. Richard Tayor, Bridgnorth.
N.B.—*Secretaries will oblige us by sending early copies of their lists.*

HOW MANY FOWLS MAY BE KEPT IN A SMALL SPACE?

How many fowls may be kept in health and comfort in a pen fifteen feet by nine, the greater part of which is uncovered? Also, are light or dark Brahma Pootras the most hardy, and do they do well in confinement?—Brahma.

[We are always pleased to give information to our readers, and therefore devote as much space as we can spare to our correspondent. We are the more disposed to do so, because we know there are many who would wish to keep fowls, but are prevented because they have been told it is impossible. We had occasion lately to prescribe for some that were sickly, and we were able to see the place where they were kept. Imagine a very lofty house at the seaside—every square inch turned to account for lodgers; but, for the sake of light and air for the two subterranean stories, there was what we should call in mines a shaft, or what those who live *on* the earth would perhaps term a well without water. At the bottom of this, and on flagstone pavement, there lived three fowls. We were told they were not well, and asked to prescribe for them. We found them Dorkings. Three hens had laid sixty eggs in a month. There was nothing the matter with them, except they lacked some of the essentials for health. They had literally nothing but some black oats thrown down on pavingstones. They were suffering as a human being would suffer who had nothing but the choicest sirloin of beef every day, *sine* bread or vegetables—

"Toujours perdrix,
Qui est-ce qui pardonne."

As there was no lack of grass, we cut some large sods, and threw them down. It was pleasant to see the delight of the birds. They flew upon them; they tore off the blades; they scratched vigorously till they were put in pieces; they ate mould, and when they had nearly pulverised all, they rolled in it, and played at basking. If the sun could have reached them they would have done so in reality. They were not like the same birds the next morning. No better proof can be asked for that they were in perfect health and strength, and needed only those things that Nature has declared to be necessary. It was keeping poultry under difficulties; but the real utility and the practical value of the pursuit, and the attention that has been paid to it, are now seen and proved. If any amateur will show to any person versed in poultry the place he can spare, and devote to it, he will immediately be told the breed fitted for the place, and that with certainty. Proof: we are happy to inform "Brahma" she can keep one cock and four hens in the space she mentions, our stipulations being observed, and the breed chosen being either Spanish, Cochin, or Brahma; we will guarantee health and eggs. It is neither necessary nor desirable the space should be covered. All that is requisite is that a portion large enough for them to roost under should be sheltered, and that the floor of it should be covered with loose earth, gravel, or dust. We will also, for the sake of our pets, ask that the place allotted to them be neither pitched nor paved. Let it be gravel or loose earth, and, above all, a heap of dust in one corner for them. The greatest necessity, or the greatest luxury, as it may be, is, however, to throw into the pens some large sods of growing grass—they should be large and heavy, to resist a pull that will allow the grass to be pulled off, and to supply a parcel of fresh mould, part of which will be eaten, and the remainder will supply the dust in which they love to lie when exposed to the sun. The food should be the scraps of the house, and ground oats for a change; but there must never be any food on the ground.

Light and dark Brahmas are equally hardy. If the place in which you purpose keeping them is clean and free from smoke, the light will do well, and they are very striking birds. If the atmosphere is smoky we should recommend the dark.]

HEN WITH DERANGED OVARY.

I have a choice Game Bantam hen that for the last five or six weeks, I think, had the egg-bag down, the bottom being very much inflamed and much swollen, and projects out a great deal. She has laid two eggs while in this state, and it caused it to bleed. I have tried every remedy I can hear of, but without success; and after each dressing she picks it and makes it very sore. The egg-bag and abdomen have been put nearly right for an hour; but the straining caused it to come down again, and yet she is very hearty and goes about well.—E. Fisk.

[All that you complain of is very easily remedied. As soon as you perceive the hen is about to lay, take a stout but soft feather, dip it in oil, and when it is thoroughly soaked then introduce it into the egg-passage until it meets the egg. Internal fever causes that to be hot and dry which should be cool and unctuous. Having lubricated the passage, you will find the egg moving. Be cautious not to endeavour to force it: a broken egg in a hen is *certain death*—even a small portion of shell is fatal. Be not sparing of your oil; but as soon as the egg has moved redip the feather and introduce it again. If there be any protrusion, use cold water and vinegar, and replace it. A sponge fastened to the end of a stick is the best instrument to use; and this treatment must be adopted for two or three days, after which all will be well.]

NATURALISING OF ANIMALS.

We hail with great pleasure the appearance of the paper on the naturalisation of foreign birds in England, from "H. T.," and the interesting notice by the popular "Upwards and Onwards." We think this paper might be made a most interesting record of jottings on "Natural History." Many hundreds who eschew sport are close observers of Nature, and our columns are open to them. We are ourselves fond of the pursuit, and date our first interest in the subject from the remark of an old friend, now many years dead. We will endeavour as nearly as possible to give it in his own words. "My parsonage was small, my family was large, and my study was subject to two invasions, the first by riotous children who would not be denied; the second, by their good mother who came to chide them, and generally staid herself. It was very pleasant, but I wanted a quiet spot. A man who has been used to a study, although he may not be a studious man, cannot do without one. Although the parsonage was small, the grounds were extensive, land was poor and of little value. There was a large piece of water with an island in the centre, and on the island a small summer-house. This became my study when the weather permitted, and here I first studied the habits of birds. The love of it grew upon me by degrees. I need not say, my first feathered friend was the Robin, and that little by little I knew them all, and I believe they knew me, for they seemed to be indifferent to my presence. I anticipated the arrival of the summer birds with impatience, I witnessed their departure with sorrow, and I became convinced the same birds visit the same place year after year. I need not add, I became interested in all their habits. My studies became more ornothological than theological; but I can safely say, the former shed a

peaceful influence over my mind, that was not without benefit to the latter." Such was the old friend who first taught us to love natural history.

It may be interesting this year to mark the influence of the late season on different birds. It has been great on Rooks in many parts, and the breed is smaller than was ever known. Ravens were not affected by the season or the weather, they were early as usual. We purpose next week giving some observations on the Dottrell and others.

I am very glad to see "H. T." has opened the interesting question of the naturalisation of foreign birds. I have at the present time a pair of Virginian Nightingales perfectly tame, and I have no doubt they would do well and breed anywhere. Many of the beautiful inhabitants of our copses and hedges are destroyed as criminals, when they should be treated as benefactors. I beg the wholesale destroyers of them to open one of each that they kill, and to see of what their food consists.—M. H.

BEVERLEY POULTRY EXHIBITION.

This being the first Meeting of poultry amateurs for the coming season, not a little interest was attached to the Beverley Show among those most conversant in poultry pursuits, as to whether the Exhibition just closed would equal in interest those preceding it. As is not unfrequently the case with any popular amusements, there were those present who unhesitatingly foretold that the result would prove how much the popularity of Poultry Exhibitions would wane; and that time would show how retrograded was the public opinion at Beverley. It is certainly impossible to imagine a more direct refutation of such notions than the result of the Beverley and East Riding of Yorkshire Association. It has, undoubtedly, far outstripped its predecessors, whether the quality, quantity of pens entered, or the universality of the attendance is taken as conclusive. The Show has always maintained the highest reputation, both for the excellence of the general exhibition arrangements, and, not the less vital one, of scrupulous attention to the wants of the poultry during their confinement. The same careful supervision was fully carried out this present year, and we congratulate the Committee on their well-earned reputation and success; as so triumphant a Show to commence the year cannot but have a very powerful influence on other Meetings devoted to the like pursuit in distant localities.

It is scarcely necessary to note, that, as a rule, poultry at this time of year begin to look somewhat the worse for the advanced state of the breeding season. Possibly from the late spring, we were most agreeably surprised to find the generality of the birds in very superior plumage to what we anticipated, although complaints were rife on all sides of bad luck with early chickens, combined with an unusual amount of unfertilised eggs; a misfortune, however, that *this* season is unusually prevalent, from the vicissitudes rather than even the well-known severity of the last few months.

The *Spanish* were very good, but it is notorious that they, being constant layers, suffer perhaps more than any variety of poultry (save Hamburghs and Polands, also non-sitters), after constantly supplying our breakfast-tables for months past. The *Dorkings* were far better than common, and shown most creditably. There were some remarkably good *Cochins*, and the Partridge-coloured were worthy of especial attention. In *Game*, Beverley held fast its own; the competition was, however, of the highest character. It is impossible to wish for better, which is saying a good deal in classes now so popular. Mr. Harry Adams, of Beverley, it will be seen by reference to the prize list, stood forth pre-eminently, although pushed very closely by many of the first Game breeders in the kingdom. Most of the Game classes were extraordinarily "run for," if we may use so sporting a phrase on poultry; and very various members of the Committee were not a little amused by a very protracted determination on the part of the Judge, Mr. Edward Hewitt, of Sparkbrook, Birmingham, respecting two single cocks belonging to the same exhibitor, for the arbitrator admitted "it would be an injustice to the loser to offer any opinion of superiority;" he at that time naturally concluding the award would be, without doubt, a mortification to the defeated one, whilst an equal division of the premiums was not concurrent under any exigence with the rules of the Society. We certainly do not call to recollection a previous instance of so remarkable a case of "dead heat," in poultry running. A very extraordinary feature in the Exhibition was, that the Duckwing Game was not only one of the best classes throughout in the Show-room, but actually secured the prize medal for the "best pen of every variety of Game fowls;" all the parties most intimately connected with Game fowl breeding admitting they never saw such Duckwings, pen after pen, throughout any Show; and that a long journey was well repaid by an inspection of this variety alone. The *Hamburghs*, though good, have undoubtedly been shown in better trim at previous meetings; although it is admitted that we naturally anticipate something far a-head in these classes in Yorkshire: this may in some measure account for disappointment. The *Polish* and *Malays* were both of excellent quality. In *Bantams* no doubt at all exists the Game were the pride of the meeting. The advancement in breeding these liliput, yet wondrously well-built little pets, to a perfection never hitherto considered attainable, was carried throughout the whole collection. The Black and also the White Bantams were very good.

The *Single Game Cock* classes, both general Game Cocks and likewise Bantams, could never be appreciated from description only. They were the most attractive of any, as the interest of public inspection well proved.

The *Pigeons* were of the highest character, most of our principal breeders contesting; and we never remember seeing any collection so completely free from indifferent specimens.

The attendance embraced almost every family of distinction in the neighbourhood; whilst recognitions from parties, residents some hundreds of miles from the spot, were by no means unfrequent, who from their curiosity alone had travelled to see the result. We cannot conclude our necessarily trite remarks on this unusually excellent poultry competition, without again alluding, in terms of high appreciation of the carefully managed arrangements throughout; and we feel assured, any parties contemplating the formation of a like association would have materially added to their stock of necessary information by a visit to the late Show at Beverley.

Spanish.—First and Second, T. T. Peirson, Bridlington Quay. Third, J. Dixon, Bradford. Highly Commended, W. Cannan, Bradford; J. K. Fowler, Aylesbury. Commended, T. T. Peirson; M. Hunter, Green Hammerton Hall; S. Robson, Pocklington.

Dorkings.—First, H. W. B. Berwick, Helmsley. Second, Mrs. T. T. C. Lister, Beamsley Hall, Skipton. Third, C. Clifton, Epworth, Bawtry (Grey). Highly Commended, W. Gray, North Gate, Darlington; H. W. B. Berwick; S. Burn, Whitby (Grey); J. K. Fowler, Aylesbury. Commended, R. Tate, Great Driffield; P. Barnard, Bigby Brigg; M. Hunter, Green Hammerton Hall (Grey); W. Cannan, Bradford.

Cochin-China (Buff, Lemon, and Cinnamon).—First, T. Stretch, Bootle, near Liverpool (Buff). Second, H. Tomlinson, Birmingham (Buff). Third, J. K. Fowler, Aylesbury (Buff). Highly Commended, W. Harvey, Sheffield (Buff). Commended, S. Robson, Pocklington; W. Dawson, Hopton Mirfield; W. Cannan, Bradford (Buff).

Cochin-China (any other variety).—First, T. Stretch, Bootle, near Liverpool (Partridge). Second, W. Cannan, Bradford. Third, W. Dawson, Hopton Mirfield.

Game (Black-breasted and other Reds).—First. H. Adams, Beverley. Second, H. M. Julian, Beverley. Third, Miss Adams, Beverley (Black-breasted Red). Highly Commended, Mrs. H. Adams, Beverley; J. R. Julian, Beverley; S. Holmes, Beverley. Commended, J. Ward, Beverley; T. Doods, Ovenden.

Game (Duckwing and other Greys).—First and Medal, Mrs. G. W. Langdale, Park House, Leconfield (Duckwing). Second, Mrs. H. Adams, Beverley (Duckwing). Highly Commended, H. Adams, Beverley (Duckwing); E. Akroyd, Darlington (Duckwing); W. Cannan, Bradford (Duckwing); F. Hardy, Bradford (Duckwing). Commended, Miss S. A. Tate, Driffield (Duckwing).

Game (any other variety).—First, W. Dawson, Selly Oak, Birmingham (Black). Second, M. Bateson, Westwood, Beverley (Pile). Third, Bird and Beldon, Bradford (Brassy-winged). Highly Commended, Mrs. H. Adams, Beverley (Pile).

Hamburghs (Golden-pencilled).—First, W. B. Key, Epworth, near Bawtry. Second, J. Dixon, Bradford. Commended, R. Tate, Driffield; G. S. Sainsbury, Rowde, Wilts; S. Smith, Northowram, Halifax.

Hamburghs (Silver-pencilled).—First and Second, J. Dixon, Bradford.

Hamburghs (Golden-spangled).—First, W. Cannan, Bradford. Second, Miss Adams, Beverley. Highly Commended, H. Carter, Upperthong; W. R. Lane, Birmingham. Commended, H. W. B. Berwick, Helmsley.

Hamburghs (Silver-spangled).—First, J. Dixon, Bradford. Second, W. Simpson, Tuckton. Highly Commended, J. Dixon; W. Cannan, Bradford. Commended, R. Tate, Driffield; Bird and Beldon, Bradford.

Polish (Black with White Crests).—First, J. Dixon, Bradford. Second, Mrs. Lister, Manningham Hall, Bradford. Commended, A. Pease, Darlington; W. Cannan, Bradford.

Polish (any other variety).—First, Mrs. Lister, Manningham Hall, Bradford (Golden). Second, J. Dixon, Bradford. Highly Commended, J. Dixon; S. Holloway, Hull (Silver). Commended, W. Cannan, Bradford (Silver).

Malays.—First, C. Ballance, Taunton. Second, J. Rumsey, London. Highly Commended, R. Tate, Driffield; H. Hodge, jun., Hull.

Any other Pure or Distinct Breed, not Previously Classed.—First,

W. Dawson, Hopton Mirfie (Sultan Fowl). Second, J. K. Fowler, Aylesbury (Brahma Pootra). Highly Commended, J. H. Craigie, Chigwell, Essex (Brahma Pootra); W. R. Lane, Birmingham (Black Hamburgh). Commended, R. Tate, Driffield (Black Hamburgh and Brahma Pootra).

Any Farmyard Cross.—First, R. Robson, Arram (Dorking, Cochin, and Malay). Second, P. Barnard, Bigby Brigg (Cochin-China and Dorking). Third, W. Maude, Bingley. Fourth, Miss Dickins, Leconfield Park. Highly Commended, R. Tate, Driffield.

Bantams (Gold or Silver Laced).—First and Second, W. Harvey, Sheffield (Gold and Silver). Highly Commended, J. Dixon, Bradford; Rev. J. Bowden, Thurgoland Parsonage (Gold); W. H. Chaffer, Hull (Silver). Commended, S. Robson, Pocklington (Gold).

Bantams (Black or White). — First, J. Crossland, jun., Wakefield. Second, J. Dixon, Bradford (Black). Highly Commended, Miss E. Barker, Hovingham (White); Miss M. E. Calvert, Beverley (Black); Miss F. Laybourn, Beverley (White); E. T. Calvert, York (Black). Commended, G. R. Tate, Driffield (White).

Bantams (Game). — First, W. W. Boulton, Beverley (Black-breasted Red). Second, J. Crossland, jun., Wakefield (Black-breasted Red). Highly Commended, W. W. Boulton (Black-breasted Red); Capt. T. Percival, Whitby (Black-breasted Red); E. Fisher, Birmingham (Black-breasted Red).

Bantams (any other variety).—First, R. Tate, Driffield. Second, Miss E. J. Stephenson, Newbegin House, Beverley.

Spanish Cock. — Prize, J. Dixon, Bradford. Highly Commended, H. W. B. Berwick. Helmsley; T. T. Peirson, Bridlington Quay. Commended, S. Burn, Whitby.

Dorking Cock.—Prize, W. Stabler, Lund. Highly Commended, P. Barnard, Bigby Brigg; T. H. Barker, Hovingham; Mrs. Hanbury, Leamington; Master H. Key, Beverley; Miss S. A. Simpson, Tickton.

Cochin-China Cock.—Prize, W. Dawson, Hopton Mirfield. Highly Commended, W. Cannan, Bradford. Commended, T. H. Barker, Hovingham (Buff); T. C. Trotter, Sutton (Partridge).

Game Cock (Black-breasted and other Reds).—First, H. Adams, Beverley. Second, F. W. Adams, Beverley (Black-breasted). Highly Commended, W. Dawson, Birmingham; R. Blackburn, Goole; T. Dodds, Ovenden (Black-breasted); J. H. Smith, Skelton Grange (Black-breasted). Commended, D. Nicholson, Beverley (Brown-red); H. M. Julian, Beverley (Black-breasted); G. Hoggard, Beverley (Black-breasted).

Game Cock (Duckwing and other Greys).—First, Miss Adams, Beverley (Duckwing). Second, W. Dawson, Birmingham (Duckwing). Highly Commended, H. Adams, Beverley (Duckwing). Commended, G. R. Tate, Driffield (Duckwing).

Game Cock (any other variety). — First, J. Woodhouse, Bempton. Second, W. Dawson, Birmingham (Black). Highly Commended, J. Neighbour, Garton (Blue).

Hamburgh Cock (Gold or Silver-pencilled).— First, G. Robson, Hull (Silver). Second, J. Dixon, Bradford.

Hamburgh Cock (Gold or Silver-spangled.) — First, Miss Adams, Beverley (Golden). Second, G. R. Tate, Driffield (Silver). Commended, G. R. Tate (Gold).

Malay Cock.— Prize, G. R. Tate, Driffield. Highly Commended, C. Ballance, Taunton.

Cock (any Farmyard Cross).— First, G. R. Tate, Driffield. Second, Miss E. Charter, Driffield.

Spanish Hens.—Prize, H. W. B. Berwick, Helmsley. Highly Commended, G. R. Tate, Driffield.

Dorking Hens.— Prize, T. Holtby, Driffield. Highly Commended, P. Barnard, Bigby Brigg; H. W. Berwick, Helmsley (Grey). Commended, T. P. Wood, jun., Chesterfield; H. W. Berwick (Grey).

Cochin-China Hens.—Prize, W. Harvey, Sheffield.

Game Hens.—Prize, G. R. Tate, Driffield (Various). Highly Commended, H. Adams, Beverley (Various); Mrs. S. Whiting, Riplingham. Commended, W. Backhouse, Etton (Black-breasted); W. Cannan, Bradford; Miss A. Dickins, Leconfield Park; G. Hutchinson, Prospect House, York.

Bantam Cocks (Gold or Silver-laced).—Prize, J. Dixon, Bradford.

Bantam Cocks (Black or White).—Prize, J. Crossland, jun., Wakefield. Highly Commended, F. Hardy, Bradford. Commended, W. Harvey, Sheffield.

Bantam Cock (any other variety).—Prize, W. W. Boulton, Beverley (Black-breasted Red Game).—J. Crossland, jun., Wakefield (Black-breasted Red Game). Commended, S. Burn, Whitby.

Gander and Goose.—First, Mrs. R. Tate, Driffield. Second, R. Tate, Driffield. Highly Commended, J. Branton, Middleton.

Turkey (Cock and Hen).—First, Mrs. T. North, Wawne. Second, J. Branton, Middleton. Commended, Miss S. A. Tate, Driffield.

Guinea Fowls.—First, Mrs. Charter, Driffield. Second, H. Hodge, jun., Hull.

Ducks (Aylesbury).—First, J. K. Fowler, Aylesbury. Second, Miss M. Seamons, Aylesbury. Highly Commended, Miss M. Seamons; J. K. Fowler.

Ducks (Rouen or Rhone).—First, T. H. Barker, Hovingham. Second, J. Dixon, Bradford (Rouen).

Ducks (any other variety).—First, J. A. Scaling, Damson Lane, Hull. Second, C. Ballance, Taunton. Third, S. Burn, Whitby (Black East Indian). Highly Commended, J. Dixon, Bradford (Grey Call); J. A. Scaling. Commended, J. Brunton, Middleton.

Sweepstakes for Game Cocks.—First and Premium, F. W. Adams, Beverley. Second, H. M. Julian, Beverley. Third, H. M. Julian, Beverley (Black-breasted). Fourth, G. W. Langdale, Park House, Leconfield (Duckwing). Highly Commended, W. R. Walker, Marlesford (Black-breasted Red); W. Backhouse, Etton (Black-breasted); F. W. Adams, Beverley; R. Swift, Southwell. Commended, Mrs. R. Tate, Driffield.

Sweepstakes for Game Bantam Cocks.—First, J. Crossland, Wakefield (Black-breasted Red). Second, R. Hawksley, jun., Southwell. Third, W. R. Lane, Birmingham. Fourth, R. Perry, Kirklington, Southwell. Highly Commended, J. H. Craigie, Chigwell, Essex; Miss M. K. Turner, Beverley (Black-breasted Red); Miss L. Turner, Beverley (Black-breasted Red); J. Long, Devizes (Duckwing); W. Hardey, Beverley; W. Harvey, Sheffield. Commended, W. Chester, Horwich; R. Hawksley, jun., Southwell.

Extra Stock.—First, G. W. Langdale, Park House, Leconfield (Pea Fowls). Second, J. Branton, Middleton.

PIGEONS.

Carriers (Black).—First, W. H. Boddy, Hull. Second, J. Harrison, Nottingham. Third, H. Yardley, Birmingham.

Carriers (any other variety).—First, T. Ellrington, Woodmansey. Second, W. Cannan, Bradford. Third, J. C. Brierley, Gedling, Notts. Highly Commended, R. H. Potts, Beverley. Commended, Master J. Key, Beverley.

Pouters or Croppers.—First, G. Robson, Hull. Second, S. Robson, Pocklington. Third, E. Trenam, Helmsley. Highly Commended, W. Cannan, Bradford.

Almond Tumblers.—First and Medal, W. Cannan, Bradford. Second, W. Watson, Beverley. Third, Master B. Key, Beverley.

Kite Tumblers.—First, J. Webster, Beverley. Second, J. Oglesby, Hull. Third, J. W. Bell, Beverley. Highly Commended, D. Barker, Hull.

Tumblers (any other variety).—First, Mrs. Watson, Beverley. Second, J. Stotters, Tickton. Third, J. W. Edge, Birmingham.

Barbs.—First, W. Cannan, Bradford. Second, F. Newburn, Darlington. Third, G. Goore, Liverpool. Highly Commended, S. Robson, Pocklington; H. Key, Beverley.

Jacobins.—First, J. H. Screeton, Hull. Second, J. C. Brierley, Gedling, Notts. Third, R. White, Thearne. Highly Commended, Miss L. Turner, Beverley.

Trumpeters.—First, S. Burn, Whitby. Second, J. W. Edge, Birmingham. Third, — Key, Beverley. Highly Commended, S. Robson, Pocklington.

Owls.—First, H. Morriss, Perry Vale, Kent. Second, J. Harrison, Nottingham. Third, R. Swift, Southwell. Highly Commended, J. Oglesby, Hull.

Turbits.—First, H. Morriss, Perry Vale, Kent. Second, S. Robson, Pocklington. Third, Master R. Bell, Beverley. Highly Commended, E. Ditmas, Beverley.

Fantails.—First, Mrs. Ellrington, Woodmansey. Second, Mrs. R. Tate, Driffield. Third, S. Robson, Pocklington. Highly Commended, W. Cannan, Bradford; Mrs. Holmes, Beverley.

Any other Variety.—First, W. Cannan, Bradford (Runts). Second, S. Robson, Pocklington (Bald Heads). Third, H. Morriss, Perry Vale, Kent. Highly Commended, J. Oglesby, Hull; G. Goore, Liverpool (Priests); R. Swift, Southwell (Meeves); R. H. Potts, Beverley (Runts).

Special Prizes for Fantails, Jacobins, and Trumpeters.—Medal, F. Newburn, Darlington (Trumpeters). Two Second Prizes, Miss L. Turner, Beverley (Fantails and Jacobins). Highly Commended, T. Ellrington, Woodmansey (Fantails). Commended, S. Robson, Pocklington (Fantails).

Rabbits (*Longest-eared Rabbit*).—First, G. Jones, Birmingham. Second, Mrs. R. Tate, Driffield. Highly Commended, Mrs. R. Tate, Driffield. (*Best Rabbit*).—First, R. H. Potts, Beverley. Second, Mrs. R. Tate, Driffield. Highly commended, Mrs. R. Tate, Driffield; J. C. Griffin, Hull; T. Watson, Darlington (An excellent class).

Canaries (*Belgium*).—First, W. Campey, Beverley. Second, J. Campey, Beverley. Highly Commended, Mrs. W. Pottage, Beverley. Commended, W. Blyth, Beverley; R. Dawson, Beverley. (*Best Marked*).—First, Mrs. Stamford, Beverley. Second, W. Pottage, Beverley. Highly Commended, Miss J. Ditmas, Beverley. Commended, Miss Boulton, Beverley. (*Any other variety*).—First, H. Thompson, Beverley, Second, Miss R. Willis, Chalk Villa. Commended, Mrs. Jackson, Willow Grove, Beverley; D. Duncan, Beverley. (*Nest of Young*).—First, J. Farrah, Beverley. Second, W. Thompson, Beverley. Commended, T. Smirthwaite, Beverley. (*Mule*). —First, Master W. Laybourn, Beverley. Second, J. Widdall, Beverley. Commended, C. Browsho, Beverley. (*Redcap*).—First, T. Smirthwaite, Beverley. Second, W. A. Stamford, Beverley. Commended, Mrs. W. Pottage, Beverley.

FEATHER-EATING FOWLS.

I read with much interest "Mrs. Dorking's" account of her fowls eating feathers, because for two years some of my Golden-spangled Hamburghs annoyed me by the same trick, though not to the extent she describes; as they merely plucked the feathers on the neck, and did not draw blood.

I fear that I cannot give her much comfort, as all the remedies I tried failed to cure them completely, and last year I gave the three delinquents to a farmer's wife, whose poultry are well managed, and have a free run every day over grass fields. Last week she told me that their necks were still bare, and they had even begun to pluck out the feathers of a hen belonging to her old stock; and then I recommended her to kill them as soon as the egg-laying season ended.

No doubt the habit arises in too-highly-bred fowls because they have been too highly and artificially fed for (probably) two or three generations. I could trace my annoyance to the introduction of a particular hen, and the cock affected in the second year was probably her son.

Mine were three splendid birds in size and "points;" but now that I have removed them I have no further trouble, having taken care to rear no chickens from their eggs.

Probably some of "MRS. DORKING'S" fowls are worse than the rest. Let her kill them, or at least separate them from the others; try the remedies you recommend, and kill all those which are not cured at the next moulting; rearing chickens from other stock this summer.—Œ.

DO BRAHMAS BREED TRUE?

IN January last I procured a fine pair of dark pea-combed Brahmas with the view of breeding from them. The hen began to lay on the 25th of February. I set all her eggs in successive hatchings of seven each, under Cochin pullets. Most of the eggs were addled, and the few chickens that I have from this pair of fowls differ widely in size, comb, and appearance. One chicken is vulture-hocked, with feathers almost touching the ground; another is, apparently, clean-legged; and all of them are smaller than Cochins of the same age.

If my experience is not exceptional, surely dark Brahmas are not a distinct variety, or good specimens are rare.—AMATEUR.

[We have our correspondent's name, and that of the dealer from whom he purchased the birds.—EDS. C. G.]

HENS WITH DISORDERED EGG-ORGANS.

WHAT are the exact symptoms of an egg-bound hen? The writer had a remarkably fine bird with a large protuberance under her tail. On consulting an individual who had a great reputation in the locality as one who was "poultry wise," she was pronounced to be suffering from an incurable tumour, instant execution being the only alternative. On her being opened a mass of shelless eggs was disclosed, from forty to fifty, in different stages of development. The hen had ready access to lime, looked well, and did not carry her tail in a drooping manner. The writer has a Cochin-China hen with similar symptoms, which he has liberally dosed with castor oil, but hitherto without any good effect.—A SUBSCRIBER.

[The hen you killed was not what is termed "egg-bound;" for this term is confined to cases where the egg is perfect in every part, but the egg-passage is so constricted that the egg cannot pass out. The hen in question, we have little doubt, had inflammation of the ovaries. In this case, as well as in cases where the perfect egg cannot pass, the symptoms are usually the same—a swelling of the hen's abdomen; going on to a nest frequently, and remaining there long without laying; and when the inflammation has continued for some time, the excrements are usually unnaturally glutinous, and clog the feathers around the anus. All such ovarian derangements usually arise from feeding too much and too nutritiously. Low diet is the remedy. Keep the hen for at least a week upon boiled mashed potatoes and boiled rice; and during the time give her each second day a pill containing one grain of calomel, and one-twelfth of a grain of tartar emetic. Let her also have as much green food and exercise as she chooses. A good grass run is the best for this purpose.]

INTERCOURSE BETWEEN COMMON AND LIGURIAN BEES.

"A DEVONSHIRE BEE-KEEPER" states (page 94) that he caught a common drone entering one of his hives of the pure Ligurian stock. Will he have the kindness to state at what distance in a straight line there are hives of the common bee? I believe it is not known how far the drones commonly wander from their own hive. Andrew Knight believed, as stated in the "Philosophical Transactions," that the queen was seldom fertilised by her own blood-relations, the drones of her own hive. Does "A DEVONSHIRE BEE-KEEPER," who seems to be so conversant with the habits of bees, believe in this doctrine of Andrew Knight?—C. D.

[I have this day (May 24th) seen pure Ligurian drones for the first time in one of my stocks, but believe none have yet taken flight. The distinction between the two species does not appear nearly so strongly marked as in the workers; but this may be owing in some degree to their not being properly matured. The apparent difference being so slight, has, however, modified the opinion expressed by me at page 94, and I am now inclined to believe the "unwelcome stranger" to have been a small hybrid drone which had come to maturity in my pure Ligurian stock, instead of being, as I at first supposed, a straggler from some other colony. The presence of a small hybrid drone is easily accounted for by the fact that I had previously strengthened the Ligurians by adding to them a couple of hybrid brood-combs, and it is more than probable that in so doing I had overlooked one or two small-sized hybrid drone grubs.

My idea is that females among bees are very generally fertilised by the offspring of the same mother, because they appear the most likely to meet during the nuptial excursion. The degree of success which attends my efforts to breed pure Ligurians may, however, throw some light on this subject.

Some years ago I witnessed a circumstance which leads to the inference that drones do, in point of fact, extend their flight to a greater distance than is generally imagined. A strong stock in full work was, at the latter end of May, removed during the night to a new situation quite a mile distant from its old locality. During the next and following day some hundreds of workers returned to the accustomed spot to meet a melancholy end in the unavailing attempt to find their habitation. The weather happening to be cloudy, not a single drone appeared until the third or fourth day, by which time not a worker was to be seen; but a bright sun then happening to shine out heralded the approach of some scores of drones, which, like their predecessors of the (not in this case) "gentler sex" also perished miserably.

When the season is a little more advanced, specimens of Ligurian drones and workers will be very much at the service of "C. D." if he will favour me with his address.—A DEVONSHIRE BEE-KEEPER.]

FRATERNISATION AMONG BEES—FORMING LIGURIAN STOCKS.

I HAVE frequently before remarked how readily bees of adjoining hives will fraternise under peculiar circumstances, where they would be the bitterest foes in ordinary cases. An instance occurred three days ago in my apiary. To understand the case, it is necessary your readers should know that the two hives in question stand side by side on the lower shelf of my bee-house, at a distance (entrance from entrance) of not more than twenty inches. The left-hand stock (as seen in the house), appeared weak* in bees, and had begun to show signs of invasion from that pest the Wax Moth; not, as far as I could see, amongst the combs, but on the floor of the hive, among the broken fragments of opened honey-cells. On discovering these I instantly removed the board, and examined the condition of the hive, thinking to destroy and plunder it. I was agreeably surprised, however, to see the combs perfectly clean and free from Moth, and an evident and considerable increase in the population since I last examined the hive two months ago, and there appeared a large quantity of brood. I therefore contented myself with cutting out some nice pieces of empty comb for guide-combs to other hives, and removing the infested board, substituting a clean one for it. It was then replaced in the bee-house. An hour after I proceeded to give a nadir, or under-box, to the adjoining stock on the right hand; this stock being extremely populous and overcrowded, in spite of a small super already given to it. Some little time was taken up with this job, during which the bees of this hive, which returned home from the fields, were, as is usual in such cases, in great perplexity at finding an empty box in place of their full hive. Then commenced the fraternisation to which I have alluded. For the distressed insects (many of them heavily laden with pollen), catching sound of the peculiar hum of pleasure which ever and anon proceeded from the adjoining hive, as some straggler after the late disturbance of that hive found its way home again, began to creep in the direction of it; and soon there was a grand rush of bees in rank and file in the direction of the weak stock. This continued for more than two hours, even long after I had replaced their own parent hive on the top of the nadir. I thought they would afterwards return to their own hive. Not so, however. They have permanently joined the weak hive, which is now so strong that the bees were working comb in it both yesterday and to-day (May 17), and play in and out almost as actively as some of my other hives.

I have been so much occupied of late, that I could not remark hitherto upon "A DEVONSHIRE BEE-KEEPER'S" caution to the inexperienced in reference to a mode of increasing Ligurian

* "THE DEVONSHIRE BEE-KEEPER," who paid me a pleasant visit last autumn, will remember warning me to expect the dissolution of this stock in the spring, and his advice to me to plunder it.

stocks, which I ventured to suggest in No. 601 of The Cottage Gardener. I quite concur with him as to the danger of hybridisation resulting from my plan in the case of the younger queens. I think, however, I shall have recourse to it; leaving it to next spring to decide whether I shall breed pure or hybridised Ligurians, according as the different varieties survive the winter. It would not be amiss that the hybrids should have a trial in England as well as the pure breed. My first drone was seen on the 6th inst., and I saw a swarm in this neighbourhood on the 15th.—B. & W.

NEW BOOK.

Taylor's Bee-Keeper's Manual.*—We consider this the best modern work upon bee-keeping. It is concise and cheap, yet the author has succeeded in effecting his purpose announced in the preface to this *sixth* edition, "the condensation of a large amount of useful apiarian knowledge, assisted by an unusual variety of illustration." There is scarcely a subject connected with bee-keeping that has not relative information in the pages of this volume, and the information is readily found, for there is a good index. The various forms of hives used in keeping bees on the depriving system are considered fairly, their merits and defects stated and liberally illustrated with drawings.

We have recently received several inquiries relative to painting hives, so we turned to the index and found references which lead to this extract.

"Various opinions have prevailed as to the expediency of painting the exterior of straw hives, some believing that absorption of vapour best takes place where it is omitted. My own idea is that, for exposed hives, an annual coat of paint is desirable, and nothing looks better for the purpose than a natural straw colour. We may resort to the words of Gelieu, who says, 'it is commonly supposed that bees thrive best in straw hives, because the straw absorbs the moisture, and the combs are less liable to mould. For my part I can perceive no difference. The bees are careful enough to varnish over the interior of the straw hives with a coating of wax, or rather propolis, to prevent the settlement of the Moths; and in the old hives this varnish is so thick that no moisture can penetrate between the cords of straw. Wooden hives will also absorb moisture to a certain extent; and experience has shown me that it is a matter of indifference which are employed, except as to the price.'"

Painting the hive should be "a sufficient time before use, or the smell is offensive to the bees; indeed, I have known a swarm forsake a box in consequence."

LIGURIAN OR ALP BEES.

Belonging to that antiquated class who look with no great favour on the rage of the present day for everything foreign, I was rather startled by the announcement in your columns that the "Spirit of the Age" had infected our very bee-keepers—that there had been imported into the apiary of a Devonshire correspondent some yellow strangers which were to be disseminated therefrom over the length and breadth of the land, and from their superior size and strength were expected to extirpate and supplant for ever, in the abominable Hanoverian rat fashion, the good old black aborigines.

My fears were allayed by the good character subsequently borne by the new comers for hardihood, gentleness, and industry. I anticipated sunken rocks ahead of "A Devonshire Bee-keeper" in his cruise of artificial queen-raising, against some of which his keel is now grating; but—knowing the ability of the helmsman to be only brought out by the intricacy of the navigation, and that in this instance the pilot was "first-class extra," and that his pen can picture with singular graphicness the incidents of the voyage—I looked forward with much interest and pleasure, in common with all your apiarian readers, for reports of his progress.

I notice with much regret the reduction of his stock hives to two: should he now doubt his ability with those left at his command to supply the requisite number of pure impregnated queens—seeing his list of parties desirous to possess the race must be numerous—could not a negotiation be opened up with a respectable party for supplying those so disposed with entire hives of Ligurians at a moderate cost, the said hives being isolated from their other bees so that the new race and its capability for our climate may be tested as early as possible?—An Old Friend of the Black Bee.

REARING LIGURIAN BEES.

The introduction of the Ligurian race of bees into England, ushered in under the favourable auspices of the pen of "A Devonshire Bee-keeper," cannot fail to revive the feelings of apimania in the breast of every true lover of bees, and induce them to scribble on their favourite theme, offering advice, or suggesting useful hints, or, perhaps, impracticable ones.

May I be admitted into the rank, and allowed to submit an idea founded on practice as well as theory?

There can be no doubt the real difficulty will be found in disseminating the species, to keep the race pure. The colour of the bees appears the true test; for if the Ligurian is really larger than the common bee, such as have been hatched in the comb of common bees will necessarily be dwarfs, and we cannot expect to see many true-sized workers at present, if we may infer from M. Hermann's hieroglyphics, that one square inch of Italian comb is valued at 1*s*. Nor, probably, has a queen of full size yet been seen in England; those imported having been, probably, artificially raised, and such queens being usually of small size, though proving equally prolific.

When the rapidity of flight of both queen and drone is considered, and the length of time they are so frequently on the wing, it may become a question whether half, or even one mile, is sufficient isolation from other families. To avoid the risk, I propose that the bee-keeper should avail himself of the well-known disposition of bees to form a second series of swarms, where a gush of honey takes place late in the season. As a preliminary measure, a second production of drones takes place, and it is not uncommon to find them in hives on the moors in which the first set of drones had been destroyed early in August. I have found them as late as the middle of October, in very richly-stored and populous hives.

The method would be perfectly feasible in the hands of an enterprising persevering bee-master. First, let the date (within a week or two) of the annual destruction of the drones in a particular locality be noted: for a month previous to this date, in the hive of a Ligurian queen in which there are no common drones, let food be supplied in floods. Directly the drones appear, supposing the general destruction to be about taking place, the queen should be transferred to another hive, when the multiplication of young queens must at once commence. It is imperative that the queen should be removed, otherwise there would be no security for the retention of the drones; and, of course, if more than one hive could be made available in this manner, the additional number of drones would be an advantage.

There may seem to be a risk in rearing queens so late in the season, but I have proved that it may be done. Finding a hive queenless the end of July, and in a locality not very favourable to bees, I supplied brood-comb, and had a little queen in eleven days. In twelve days more she was ready to commence her maternal duties—about the 20th of August; but not having my memoranda at hand I cannot be certain of the exact date. Except the few drones that remained in this hive, I am not aware that there were any within several miles. The hive was carefully tended, and prospered, and, being the subject of an experiment, was pressed forward in the spring, and the little queen led off the earliest swarm that ever issued from that apiary.—Investigator.

OUR LETTER BOX.

Painting Straw Hives (*Erin*).—See an extract from Mr. Taylor's "Bee-keeper's Manual," with the opinion in which we quite agree.

Cock Persecuting the Hens (*A. G. G.*).—All animals confined in a small place, like a dog chained up, become irritable and worse tempered than when in freedom. Your Black Hamburgh cock attacking the Spanish and other hens admitted to, is so influenced. Try the effect of confining the hens under a coop where he can see them for some days before you admit them to him. If he still attacks them, you had better dispose of him.

Pullets for Winter Laying (*Brahma*).—April and early May are the latest months in which pullets can be hatched with a prospect of their laying any time during the following winter, and these only of the Cochin-China and Brahma varieties. The latter are said to be hardier than Cochin-Chinas. Queries sent to our office by Tuesday or Wednesday are almost certain of being answered the following Tuesday, but much must depend upon the living authorities we think necessary to consult.

* *The Bee-Keeper's Manual*, or Practical Hints on the Management and complete Preservation of the Honey Bee; with a description of the most approved Hives, and other Appurtenances of the Apiary. By Henry Taylor. London: Groombridge & Sons. *Sixth Edition.*

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JUNE 5—11, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
5	Tu	Pinguicula lusitanica.	29.911—29.862	76—51	N.E.	.64	47 af 3	9 af 8	21 10	16	1 47	157
6	W	Salvia verbenaca.	30.021—29.954	78—52	E.	—	47 3	10 8	51 10	17	1 37	158
7	Th	Orchis bifolia, &c.	29.993—29.863	76—47	E.	—	46 3	11 8	13 11	18	1 26	159
8	F	Satyrium hircinum, &c.	29.803—29.701	77—54	N.E.	—	46 3	12 8	30 11	19	1 15	160
9	S	Ophrys cordata, &c.	29.718—29.620	73—52	N.E.	—	45 3	13 8	44 11	20	1 3	161
10	Sun	1 Sunday after Trinity.	29.616—29.561	72—51	N.E.	—	45 3	13 8	56 11	21	0 51	162
11	M	St. Barnabas.	29.624—29.556	69—52	S.E.	—	45 3	14 8	morn.	☾	0 39	163

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 70.5° and 47.8° respectively. The greatest heat, 90°, occurred on the 7th, in 1846; and the lowest cold, 33°, on the 5th, in 1856. During the period 133 days were fine, and on 98 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Loosen the earth about the growing crops frequently in dry weather. Never allow, if possible, a weed to seed. *Cabbages, Savoys, &c.*, prick out some of the earliest sowings, to be shaded in sunshiny weather with mats for a few days until they take fresh root-hold. *Cucumbers*, as they advance in growth under the hand-glasses, peg them down, water to be given in the morning when they require it, and only on such mornings as are likely to be succeeded by fine days. *Dwarf Kidney Beans*, earth up those that have been planted out and sow again. *Parsley*, thin out the plants of the early sowing to six inches apart. More seed may now be sown. *Peas*, continue to earth up and to stake the successional crops. When the earlier crops begin to pod, give them a plentiful supply of water to forward the produce. At the time of sowing during dry weather, water the drills after they are drawn and before the seed is sown. *Potatoes*, to be hoed between to loosen the earth and to destroy weeds. *Spinach*, thin the early crops, and sow again for a succession. *Vegetable Marrows*, plant out on a rich piece of ground where there is plenty of room for them to grow.

FLOWER GARDEN.

Hardy Annuals, sow seed, to succeed the earliest. Those that are up to be thinned out, so that no more than three or four of some, and six or eight of others, be allowed to remain in a patch. *Auriculas*, gather the seed if wanted, as soon as each pod turns brown, and before it opens. Look well to the drainage, remove dead leaves, and stand the pots on some dry bottom. *Balsams* to be shifted into larger pots as they may require it. They would now do very well if the pots were set in the open air, though they would not grow so fast as in a pit. *Chrysanthemums*, continue to propagate by taking off the tops and striking them under a hand-glass on a border. Plants intended for specimens to be frequently stopped, to form them into proper shapes. *Crocuses*, tie the leaves into a knot to finish their growth, and as soon as the foliage turns yellow, they may be taken up. *Dahlias*, as they are now making growth will require to be supported by three or four stakes besides the centre one, as the branches will not sustain their own weight. *Pansies*, take off side-shoots and strike them on a shady border. *Pinks*, put in pipings on the north side of a wall, or on any other shady spot, putting two or three inches of light, sandy soil on the surface, pulling the pipings out of their sockets, and pressing them gently between the finger and thumb into the soil. Neither a knife to be used, nor a leaf to be stripped or cut. The piping, or cutting, to be two or three inches long, and inserted half an inch in the soil, to be then well watered through a fine rose.

FRUIT GARDEN.

Attend to the disbudding of Peaches, Nectarines, and Apricots, and thinning the fruit gradually when set too thickly. Pick grubs off Apricots, Plums, and Pears. Attend to the stopping of the shoots of Vines, keeping them thin and nailed in. Give Strawberries a thorough good soaking of water after blossoming, and lay straw or short grass between the rows, to prevent heavy rains from soiling the fruit. Take the earliest opportunity of layering in 60-sized pots the best runners of the different sorts that you will require for forcing. Thin the shoots of Raspberries to two or three of the strongest, if not already done. Disbud Figs, retaining no more wood than will be required for the ensuing season.

STOVE.

Continue to shift all plants that require it. The best time for shifting Ærides, Camarotis, Saccolabium, Vandas, and all plants similar in habit, is as soon as they have done blooming. When furnishing them with new baskets give them plenty of room, and good open materials to grow in. Now that the fires are discontinued, water must be given cautiously, but sufficiently; and all plants swelling off their bulbs to be syringed overhead two or three times a-day, to make the pseudo-bulbs as large as possible. Shade with care, and give air freely, leaving a little on all night, which will in some measure prevent the blossoms from spotting through condensation.

GREENHOUSE AND CONSERVATORY.

The principal part of the greenhouse plants being now in their summer quarters as advised last week, their places may be supplied by some of the more hardy stove plants and tender annuals. The supplies of moisture and of day and sometimes of night temperature to be regulated by the state of the weather. All rambling growth to be stopped.

PITS AND FRAMES.

Cucumbers require constant attention in thinning out the shoots, watering, &c. Frames facing the north answer well for Cucumbers through the summer months. *Melons:* when the fruit is ripening water to be given with caution; but it cannot be entirely withheld without damaging the foliage. A sowing to be made for a late crop. *Vines* in pits to be trained close under the glass, and to have regular supplies of water.

W. Keane.

CRYSTAL PALACE FLOWER SHOW.

A regular Chiswick day out in the garden, but inside a magnificent weatherproof garden, attached, as it were, to sumptuous saloons and drawing-rooms; and these in their turn easily accessible to the dining and dressing-rooms, where there were abundance to discuss and arrange during the whole afternoon. In the country they first go to their dressing-rooms, then to the dining-rooms; but here they reverse it, and the inner and hidden parts of Nature come first into play, and the setting for effect, as with the flowers, are the last moves for the chance of the grand prizes. The new arrangement for these shows has succeeded far beyond the anticipations of its warmest advocates. There has never been such another show of

flowering plants in England, nor even anything like it, as I can well declare; for I had been officially engaged at Chiswick during the whole period of the palmy days, from 1837, when I went in and found them at loggerheads with Nurserymen, Judges, and in interfering with Judges and Council, to the end of their prosperous career. I was also a witness to the flash of success which shined on the botanist-florists in the Regent's Park; and a most successful, and deservedly successful, shine it was, but it was as nothing to that of the new free-trade system at Sydenham. But I got at the secret of the move—I felt a tug at my elbow as I was in raptures over Mr. Turner's flaming, feathered, and far-fetched Tulips. There was Sir Joseph Paxton, the prince of gardeners, with her Grace the Duchess of Sutherland on his arm, and before they left me I moved a resolution to the effect that I should be allowed to mention the chance interview without breach of etiquette or precedent. Sir Joseph seconded the motion, which was passed unanimously.

The whole scheme of the new arrangement is a free-trade movement by Sir Joseph himself; the only part of the scheme which did not coincide with the same notions of The Cottage Gardener was that by which an exhibitor, under the new law, is subjected to the restrictions which were considered necessary under the protection policy, more particularly the enactment which tied his hands and his ambition to a certain fixed period during which he must needs have the plants in his possession before the day of exhibition. "But," says Sir Joseph, "I shall tie no man's hands, or put any restrictions whatever upon an exhibitor in future." "You," he went on to say, "may compete for all our prizes." "Then," said I, "you have arrived at a point which cost me a vast deal of thought and study to gain access to."

This question of free trade in floral exhibitions had been privately discussed in the Council-room at Chiswick, before Dr. Lindley, Dr. Herbert, J. Rogers, Esq. (the inventor of the conical boiler), several other members of the Council, and the principal judges at the exhibitions for the space of four years. I was dreadfully against it at first, but I was wrong. The Doctor, I think, was for it from the first; but it was the end of the summer of 1846, before we were all united in the opinion that it was the right and best way after all, and I expected, Suffolk-like, the Doctor would have made a start at Chiswick in the free trade line the year after; but I never heard any more of it till I received the schedule from the Crystal Palace the other day. So you see Sir Joseph Paxton was born to be lucky, which is more than can be said of any of us who were in this secret. But, generally, I have had my share of good luck at the shows, in meeting good critics, and the principal judges of my part of the craft, among the country party; I little expected, however, to meet the Queen and Prince of gardening together in the midst of flowers. We gardeners consider the Duchess of Sutherland the highest authority in these kingdoms in flower-gardening, and in the arrangements of flowers and colours for the best effect, and we often say "our Queen and Prince" were there, at any given show, while all the gardeners and nurserymen in the room understand the allusion to be to her Grace and Sir Joseph. But our "Queen and Prince" have a great deal yet to learn about florists' flowers, and about florists' Tulips more particularly. They wanted a leaf out of my book about them, and I was obliged to own I knew nothing about them; then I told them what I had seen at the Wellington Road Nursery the other day; but the Duchess had seen the bedding Tulips there, probably in the suite of Her Majesty, but never such a splendid exhibition as that then before her. What they said about mauve, ribbons, beds, and terrace gardens, is in accordance with what most of the peerage people hold as the apple of their eye—the "decorative" portions of their country residences.

The Orchids were the most numerous—over the usual quantities seen at one show, there being no less than twenty-eight entries of them. There were not many new ones of them, but they were all very good. *Cattleya citrina*, *Aclandiæ*, and *bulbosa*—three dwarf alpine plants not generally seen. *Lælia Warneri* was the newest to me: it is, as it were, a niece to *Lælia purpurea*, with a different form of *labellum*, or great front lip of the family. *Oncidium Philipsianum* was also new to me, and is the same kind of improvement on *Oncidium sphacelatum* that *ampliatum major* was on the elder Oncidium of that name. The white variety of *Cattleya Mossiæ* from Mr. Warner was there; and the history of it is, that it is a better grower and a far more free one to bloom than the one of that strain which was seen five or six years back from Sion House. At the last meeting of the Floricultural Committee it was shown and believed to be all but identical with the latter kind. *Cyrtochilum stellatum*, or *Miltonia stellata*, was better in one collection than I ever saw it, and is really a fine thing for a specimen plant. *Dendrobium nobile* was never seen finer, nor *Trichopilia coccinea*: one in Mr. Warner's collection was one mass of bloom all round the pot.

Vanda teres has been subdued at last by Mr. Carson, who had it there in bloom after the shape and profusion of a Pelargonium, having seventeen or eighteen spikes of bloom, and many blooms on each spike. The way is most ingenious. A stout block or stem of wood, from four to five feet long is placed upright in a large pot. Pieces of the Vanda are then planted between the block and the rim of the pot all round. The *teres*, or terete, or long, naked shoots, are then fastened upright to the post or block; the steam is put on; the shoots grow amazingly, and would soon be up yards above the post, and a few flowers might be seen now and then. Not that, however. As soon as the shoot or shoots reached the top of the post they are trained round and round and crossways into the shape of one of the hanging-baskets of the Palace turned upside down, a broad and very blunt pyramidal shape, and the whole is one blaze of bloom all over, such as never was seen in this part of the world before. The most lovely *Dendrobium liliiflorum*, and the most lady-like of that Asiatic race, was there too in Mr. Woolley's lot. There was one *Maxillaria tenuifolia* and one of *aromatica*. The former large enough to load an ass comfortably; the other the most wholesome-smelling plant among all the air-plants yet discovered, and worthy of a place for cut flowers for the drawing-rooms. *Lælia cinnabarina* in Mr. Warner's collection, with six flower-spikes, was the best-bloomed plant of it I have seen at a show. *Arpophyllum giganteum* I have never seen better than it was grown by Mr. Carson. The Phalænopses were not nearly so fine as they will be in June, nor the Ærides or Saccolabiums, and very few Vandas of extra looks. Six was the largest number of blooms on a *Lælia purpurea*. Phaiuses, Dendrobiums, Brassias, Oncidiums, Cypripediums, Epimediums, Cattleyas, were the other most extensive genera in Orchids.

The premium prize, of £20, for the best sixteen of these was won by Mr. Gedney, gardener to the Rev. Mr. Ellis, Hoddesden. His best were the said *Cattleya citrina*, *Lælia purpurea* with six blooms, a good variety of *Lycaste Skinneri* with sixteen blooms, a noble-looking *Phaius Wallichii*, a fine *Dendrobium primulinum* and *densiflorum*.

The second prize, of £15, to Mr. Bullen, gardener to J. Butler, Esq., Woolwich, who had the *Cattleya Aclandiæ* and the curious *Saccolabium curvifolium*.

The third prize, of £10, to Mr. Robert Warner, Bloomfield, near Chelmsford, Essex. His collection includes the said *Lælia cinnabarina*, and the Trichopilium, and the Rhubarb-scented *Dendrobium macrophyllum*—all good-sized plants.

Mr. Rhodes, gardener to J. Philpot, Esq., Stamford Hill, had the next prize, of £7, with a next-in-degree collection of sixteen plants.

The next run was with ten plants in a collection; and it

was here that Mr. Carson showed conspicuously his Rarey management over the hitherto-unconquerable *Vanda teres*, and won the first prize, of £15. His *Oncidium ampliatum major* was very good; and his *Camerotis purpurea* was in Rarey's style of management. Also his *Cypripedium barbatum superbum* had twenty-six blooms fully open; and his *Arpophyllum giganteum* had seven bloom-spikes, upright as a dart, and covered densely at the top with crimson bobbins, or close spikes, like some coral ornaments.

Mr. Lovell, gardener to H. E. Gurney, Esq., Nutfield Surrey, was second, or £10. He had that fine *Miltonia stellata* under the cancelled name of Cyrtochilum by its own author. Another fine creamy-white flower of his was *Dendrobium tortilis*, and such like.

The third, of £7, to Mr. Woolley, whose best were *Dendrobium Paxtonii* and *Ærides crispum*.

The fourth prize, of £5, was to Mr. Robert Warner aforesaid. He had a splendid *nobile* Dendrobe; also a *D. tortilis*, a fine *Mossiæ* Cattleya, and *Oncidium sarcodes*, and the *bulbosa* Cattleya. There were many more good bloods in the rest of the tens.

The next start consisted of six plants of Orchids, and this was very strongly contested. Talk of protection to little animals! why, there is just as much more strength in the blood of ponies over that of regular racers, as it is in less compass. Free trade will take out the six-plant collections, after awhile, in better condition than we have seen the heavy weights attain. The first prize, of £7, in sixes, went to Mr. Warner. It was here he placed the *Oncidium sphacelatum Philipsii*, but, that being a bad name, it ought to be known as *O. sphacelatum major*; and no one will ever grow *sphacelatum* after seeing this in bloom. *Dendrobium transparens* and *Ærides Fieldingii* were in high cue.

Mr. Bullen was second, or £5; *Lælia purpurea*, also with six flowers, being his best; and Mr. Bunney, of Stratford, was nose and nose with him, and got £5 more for being so; his were high flower sorts—such as Ærides, Saccolabiums, and Phalænopses; but then he is a nurseryman, and can show what he likes.

Mr. Carson was third, or £3, here with his *Maxillaria tenuifolia*, *Anguloa Ruckeri*, the only Acanthophippium there, and a small *Miltonia stellata*. Mr. Woolley was next, and he had his *Dendrobium liliiflorum*. The rest of the six-in-hand looked plucky enough for a fresh start.

I noted all the Orchids before they were judged, and judged as I went. Sir Joseph Paxton and Mr. Grove, the Secretary, can prove the first part, and one of our Editors can prove that my awards corresponded to a fraction with that of the Judges; for I had not to alter one of them in the afternoon when "we" went back to take up a note of the prizes.

The next in order were the Novelties and New Plants, and Messrs. Low & Co., of Clapton, were the principal and prime movers. First running with a pair only; then with six in hand Scotch greys, or Begonias of the Scotch-grey blood; then with tandem, the leader being of a blood before the flood, and by name *Collocasia metallica*; and pray do not forget the name, as it is very likely that this is the only living thing we possess from before the flood. The nearest to liken it to is the peltate-leaved Caladiums of the present era, and the colour is the most difficult to imitate of all the fancies—a metallic dark purplish-blue bronze. It is of the fine-foliaged class, and, from the size of the leaves and the way the leaf-stalk is fastened to the centre of the leaf, one might be inclined to believe them to be the natural shields for the children of the Dryads, or some such race, before the present order of things. There is nothing now on earth like these leaves out of a fossil state. As compared with *Rex* and its blood relations, the new Begonias of the Clapton Nursery are as Scotch grey ponies compared to Scotch grey chargers. *Gem*, *Lowii*, *Zebra*, and *Cloth of Silver*, or *Queen's Saddle-cloth*, are their names; and there is a *Madame Alwardt* larger than these, and smaller ones still; then a new and handsome-leaved and softwooded-looking plant called *Sphærostema marmorata* with the leaves nearest in beauty to those of *Cissus discolor*, and in that shape, but of greater substance. Also the Bernean Plocostemma, which I mention from the Clapton Nursery, with hanging clusters of light cinnamon Hoya-looking flowers hanging down gracefully from every joint of last year's wood; and also *Anæctochilus petale*, and the new Fern called *Lindsæa*—all these had prizes, and deserved them. Then a fine primrose-coloured, strong-growing Cypella, after the fashion of *C. Herbertii*, from Mr. Gedney, of Hoddesden; it had the sepals marked with dark blotches in the way of a Peacock Iris. It is from Natal by Mr. Ellis, and will probably do with the treatment of Tritoma or Pardanthus, and is the finest looking in that genus. This had a prize also, as had a collection of six half-standard plants of his new Azalea *Magnet* from Mr. W. Barnes, of Camberwell, a rosy, fine-shaped bloomer. The *Stangeria paradoxa*, a half Fern and half Zamia-looking plant from Natal, from Mr. Young. A new close-growing Ilex and *Quercus bambusæfolia* from the Messrs. Jackson, of Kingston. *Begonia Leopoldii* from Mr. Ivery. A seedling golden Fern from *ochracea* by Mr. Euston, gardener to Sir John Duckworth, Bart. Two splendid *Rhododendron Dalhousianum*, one from Mr. Carson, the other from Mr. Green, both in fine bloom and good healthy leaves—the flowers four in a cluster.

I have been engaged some time in hunting up the best management of these Sikkim Rhododendrons, and I hope to be able soon to give a regular-Bagshot-and-Standish-management paper on that race.

A fine bedder of the *Drummondi* breed of Phloxes from Mr. Taylor, of Shrubland Park gardens, stood here, but I cannot give the name; it was a *memento mori* for me, who have just lost the best garden friend I ever had. Sir William Middleton is no more!

The Azaleas were particularly fine and very numerous, but not different in kinds from what I had often booked. Mr. Carson has obtained the lead in them this time, and the way his first collection of ten kinds was marshalled against the same number from Mr. Green, at the right and left corners of the farthest-off nave, was a masterpiece of arrangement. If the two opposite corners had been equally well set, the Exhibition, as a whole, would have been the best set off of all that ever I saw attempted. Mr. Green and Mr. Carson live so near to Epsom Downs, that none can rival them in starting on a Derby day like this. They matched their Azaleas to perfection, each starting from the centre of his group with a handsome florid-yellow Chinese Azalea, and the first won the £12, the other the £8 prize. Mr. Whitebread took the £5, and Mr. Gaines the £4 prize in this class, and Mr. Peed had an extra prize in the same.

There was a keen competition in the class of eight newest kinds of Azaleas. Mr. Turner, of Slough, Mr. Ivery, the Messrs. Fraser, and the Messrs. Jackson, competed here; and Mr. Green was the only gardener who started against such odds, and he came out third best after all. Mr. Turner's eight Azaleas were the best placed for effect at the Show. They were in three tiers, or on three shelfs or stages, rising one above the other; three plants on the top, three on the middle, and two on the front stage. The middle plant in the second row was his key plant to read from. It was *Criterion*, with *Gem* and *Prince Jerome* to match on each side of it. *Stanleyana* stood behind *Criterion* on the top shelf, with the *Empress Eugenie* and *Petuniæflora* right and left of it to match; and in the front, *General Havelock* and another match to it also, which I did not note, because I spent more time than I could well spare enjoying that setting off. His *Gem* and *General Williams* were the best in Mr. Ivery's. The best in Messrs. Jacksons' were *Petuniæflora*, *Rosea grandiflora*, *Grand Crimson*, and *Valentine*;

and *Louis Napoléon* was the best and most different from those before mentioned, in the Messrs. Fraser's.

In the class for six Azaleas, Mr. Carson was first; Messrs. Atlee and Whitebread second; Messrs. Peed and Kaile third; and both Mr. Hally, of Blackheath, and Mr. Smith, gardener to A. Anderson, Esq., Norwood, had equal prizes in the next degree. But, in all the aforesaid, there were more exhibitors and many more plants than one might think from a dry list of them.

Pelargoniums were just as good as they have been for the last ten years at a May Show, but not better or more numerous, and there was no appreciable improvement in their seedlings, which were very numerous here. The prizes were few for May-seedling Pelargoniums, probably from the discovery that seedlings of all kinds of fancy plants have not, and never can have come to their true colours as early as May. No one can beat Mr. Turner in Pelargoniums. He took the first prizes in olds and fancies, and in seedlings. Mr. Dobson and the Messrs. Fraser followed in the old kinds; and the Messrs. Fraser in the fancies; and several gardeners took prizes in both. The Duchess of Sutherland admired Mr. Dobson's the most on account of his having more variety, and particularly more white kinds, such as *Una, Fairest of the Fair,* and *Bride,* with *Euphemia,* which is nearly white; and his *Rosalie* and *Governor General* made a good match pair, a thing which all great ladies delight to talk about. The Messrs. Fraser had a good match for *Sanspareil* in *Mr. Hoyle;* also, *Rosamene* and *Governor General. Parepa* and *Lady C. Grosvenor* were my own two favourites of all the seedling Pelargoniums, and they will endure, as *Sanspareil* has done to this day, after the more floristical rivals are dead, gone, and forgotten. Mr. Glenny and I staked our fame and fortunes on *Etna* and *Sanspareil,* fourteen years back. They were both seedlings of one day, at least of that day. *Etna* was sold that evening for £50, and my *Sanspareil* was thought nothing of; but it has been in every winning collection ever since, and *Etna* is not worth one farthing now. *Parepa* is a purple ground, and five large dark spots, and *Lady Constance Grosvenor* is a fine red. Both belong to the Messrs. Rollison. *Arabella Goddard,* in Mr. Turner's seedlings, was also very good.

In the Horseshoe class, Mr. Hally had two kinds of good house plants, after the breed of *Kingsbury Pet,* called *Aurora* and *Beauty of Blackheath. Countess of Bective* is still, I believe, the best pot plant of that breed, and none of them do out in beds, as the sun spoils them. There was a good one for beds from Messrs. Wood and Ingram, called the *Countess,* and many other odds and ends.

Fuchsias had all they needed from "us," last week.

The Roses were most magnificent, and never before half so large. One of *Souvenir d'un Ami,* in Messrs. Lane's collection, had the largest Rose I ever saw in or out of doors. Messrs. Paul were first, Messrs. Lane next, and Mr. Francis third, and no amateur attempted to run against them. *Augustine Mouchelet,* in Mr. Francis's lot was the only Rose there that has not been seen hundreds of times at such gatherings. His *Général Jacqueminot* was the highest-coloured; but they were all such as I never saw before.

In Cinerarias, Mr. Dobson beat Mr. Turner this time. *Regalia,* a self crimson, and *Queen Victoria,* a deep purple edge and white centre, both in Mr. Turner's, were the two best, and the only two out of the whole lot that I should think worth a pot for the conservatory. The circle of the florists will soon render these gay spring flowers worthless for decoration.

Calceolarias not very numerous, and about the usual run of sorts.

Collections of Variegated and Fine-leaved Plants not so numerous as usual, which was a great improvement, as they went to the extreme with them, and with Ferns, of late years.

There were no prizes offered for Ferns at this exhibition, yet there were thirty yards of them, and an extra prize was given to one collection.

The collections of Stove and Greenhouse Plants were thoroughly good specimens of careful cultivation, though I do not recollect having seen so many collections, or half so many without some black sheep among them; but here there was hardly one with a black tail. Seven years ago I offered to bet £50 that I could tell the names of all the stove and greenhouse plants at a May show, that year, without going over the threshold the whole day, and now the thing is easier done than then. Azaleas, Allamandas, Polygalas, Chorozemas, Epacris, Eriostemons, *Acrophyllum venosum,* Tremandras, *Dracocephalum gracile,* Adenandras, Aphelexises, Tetrathecas, Pimeleas, Boronias, Clerodendron, Ixora, blue Leschenaultia, Hedaroma, Genetyllis, Franciscea, Hoya, Meyenia, and a few others not very different from them, a few Heaths, and an occasional old thing or two, fresh brought under subjection, are all the May plants for these large collections. *Combretium purpureum* in Mr. Baxendine's collection was the only exception at the Crystal Palace; as I see a list of the winners in the last number I shall say no more about them.

The Heaths consisted of *depressa, Cavendishii, elegans, ventricosas* (of sorts), *florida, perspicua nana, favoides elegans, trossula intermedia* (Bowinia breed), *Beaumontia, fastigiata, lutescens,* and a few others. The largest Heaths were produced by Mr. Laybank, gardener to J. H. Maudsley, Esq., Norwood. *Böhmeria argentea,* amongst the newish fine-leaved plants, turns out to be a tall, dense, strong, soft-wooded plant, and seemingly as easy of culture as a Justicia. By-the-by, a *Justicia* something *variegata* in the Messrs. Jacksons' collection of *variegatas* is one of the best of them to form into a good specimen plant.

In tall Cacti no one can beat Mr. Green. There was a new cross Epiphyllum, between the *speciosa* and *crenata* breeds, a starry straw-coloured flower, and very singular in the genus. It was in a collection from Highgate by Mr. Young, gardener to R. Barclay, Esq.

D. Beaton.

CINERARIAS NOT THRIVING.

"M. R. S." will feel obliged by a reason why her Cinerarias are this season flowering badly with some yellow leaves in the foliage. They were potted with chopped turf and ordinary soil. Perhaps there should have been leaf mould and sand in it. No fire heat was used during the cold weather in spring, and the sashes were opened even in cold days.

[We should judge the Cinerarias were suffering more from neglect of watering and a dry atmosphere, than from cold in spring. They will find no fault with cold or moisture, if the thermometer is a few degrees above the freezing-point. The air lately has been very dry and hot, and if the plants were not kept airy and cool and moist, we should expect the signs indicated to follow. A little sandy matter in the compost would have been beneficial.]

VINES UNPRODUCTIVE.

I have the care of a stove about thirty feet long, with *Vines* along the rafters, and glass-cases for putting them in during the winter. Now, these Vines have never fruited properly, though they are near ten years old. As the Grapes in 1857 and 1858 shanked, I, in September of the latter year, took up the roots and lessened the depth of the border, with a layer of broken bricks two feet deep, thus reducing the depth of the mould from five feet to three feet. These last two years they have shown fruit well; but the fruit-bunches, instead of flowering, turn dead and curl up like a corkscrew. The flue is only about two inches from the outside wall; and as the flue is buried level with the footpath inside, much of the heat goes out into the border, and creates, I think, too much moisture. As I have to heat a greenhouse, when necessary, from the same fire, the heat must, at

times, be considerable. Do you think a waterproof covering for six months in the year would be likely to remedy the evil?—Carolus.

[See the article now publishing by us on "Points of Vine Culture." Under the circumstances, we should judge your Vines are suffering from want of strength, or of reciprocal action between the roots and tops. We do not see how the position of the flue could give you too much moisture. Properly managed, we consider it a great advantage for moderately exciting the roots; but of course a little protection on the surface of the border would be necessary, and a waterproofed covering would be extra desirable. In your case care should be taken that the soil next the flue does not get too dry. If there were no covering, we should expect the roots, if near the surface, to suffer from the early frost last winter; but all may be made right this summer.]

CONSTRUCTING A CONSERVATORY AT THE END OF A HOUSE.

I have just had erected a villa, and am anxious to have a small conservatory or greenhouse at the side of it. The only space I have to erect one is about 16 feet by 12 or 14 feet, nearly facing the north, and would be entered from the drawing-room floor. I do not know what roof, whether a span or lean-to, would be best; the latter would be, of course, the cheapest, but the price would not be any objection. Or would a ridge and furrow roof be the best for growing the usual favourite conservatory plants—as Roses, Geraniums, Fuchsias, &c.? And should the roof run parallel to the roof of the dwelling-house, thereby securing a fuller frontage of glass to the south-east? Or have the roof at a right angle to the house-roof when it would face the side high wall of the next villa, which is north of it? May I beg you also to inform me what is the simplest and most economical means of heating such a structure merely at a genial summer heat? as I shall not attempt to cultivate any plants which require much heat or are tender to rear. Would, also, a Vine planted outside, and brought inside, do any harm to such flowers, and what variety would be the most suitable in such a place? I thought that the foliage of a Vine during the hot summer months would act better than blinds in shading the plants from the rays of the sun. Lastly, is Hartley's rough plate 16-oz. glass the best to use for glazing?—Flora.

[We should prefer a span-roofed house, and the ridge to run the same as the ridge of the mansion; the sides will then face the south-east and north-west. This is so far as we understand it. Hartley's patent we would use for the roof, and British plate for the sides; these sides to be 6 feet high, half at least glass. Height at ridge 10 feet or so. If the plants are below the eye of the spectator in the drawing-room, they would be most effective from that point. Heat from kitchen boiler, if convenient; or if convenient by a flue beneath the pathway; or by a portable iron stove with a metal chimney through the roof, to be used as needed from November to April. Vines will do no harm if the stems are some 5 feet or 6 feet apart; if nearer they will shade too much in summer. We should plant a *Black Hamburgh* and a *Black Champion*. The price of the conservatory would be regulated by whether mere utility, or neatness and elegance entered into consideration.]

NEW BOOKS.

A House for the Suburbs.*—Mr. Morris says that an architect, "in his specification of materials and detail," is bound to arrange "a place for everything, and everything in its place;" but we fear that no one who has dared to erect a house and then tried to let it, has ever found that the architect did as Mr. Morris says he is bound to do.

A friend, who had ventured to build himself a residence, was so deluded as to conceive that it was fraught with comfort; but events occurring inducing him to seek for it a tenant, then he found how much he had been self-deceived. He made a note of the various defects pointed out by those who came to view it; and though in some degree anomalous, they will serve to show that Mr. Morris undertakes no easy task when he says that he is bound to find a place for everything.

"1. No recesses for couches—chimnies being outside.
"2. No closets in either dining or breakfast-room.
"3. Staircase too grand; space sacrificed to show.
"4. Doors in corners of the rooms;—no corners for furniture.
"5. Door in centre of side of dining-room—no place for side-board.
"6. Only two floors—upper floor too cold in winter, and too hot in summer!
"7. Being on high ground, would have been less exposed if all on one floor!!
"8. Windows too large—cheerful but chilling.
"9. House facing the south—one side always too sunny, and its opposite always cold and damp."

Some of these house-searchers wanted more stabling; others complained that the servants' rooms were defective; a third set objected to the breakfast-room being connected by folding doors with the drawing-room; a fourth that the dining-room was too near the kitchen; a fifth that the mosaic pavement of the hall was slippery; a sixth—but we have copied enough to justify our friend in his warning to us, "If you want to know how badly arranged is your house—try to let it!"

Now, as our friend had employed an architect, we commenced reading Mr. Morris's handsomely-bound, well-printed, and stout-papered volume, with some misgiving that he would not succeed in convincing us that he had found a proper place for everything, and had put everything in its proper place; but as we proceeded in our perusal we gradually relaxed our brow, and concluded by thinking that if we ever endeavoured to work out domestic comforts in bricks and mortar, we should have no objection to have Mr. Morris to guide our plans and regulate our expenditure.

As an example of Mr. Morris's powers, we extract from his volume the following description and plan of a detached suburban residence and grounds.

"The public road is on the south; the enclosure, a simple wall without ornament or opening except at the entrance, which is marked by bold piers. Carriage and foot gates are supported by strong oak posts with moulded terminations; for it is an error to hang gates, though small, to piers of brick or stone, however large, for the jar is sure to fracture and destroy the rigid and unresilient mass. The drive conducts you to the house (1), whose entrance is marked by the external lamp (9), and then goes on to the stable (2), and kitchen-court (11), by the turn necessitated by the elevated mound which at once conceals some inferior depositories, and supplies dry slopes for sweet-scented herbs, as well as lofty trees screening, perhaps, some undesired object beyond, and taking advantage of that pleasure to be obtained by changing levels as well as by varying directions. The shrubs by which this drive is hedged are mostly evergreen, and dense enough to preclude an oversight of the adjacent space.

"The house-door, it will be noticed, is on the east; and the vestibule, hall, study, and dining-room, are the only family apartments on the ground story—an arrangement by which the plan is kept within moderate bounds, and the drawing-room is increased in importance by the ornamental character of the staircase by which it is approached, a more ample view is obtained, and the golden rays of the evening sun are felt till they sink into the deep absorbing grey of night.

"You pass no other room to arrive at this, but a gallery leads to bed-chambers on the same level. There are no rooms above; and, as there is no basement or underground story, an inquiry may arise as to where the servants' bedrooms are. They are neither on the ground or one-pair, but between, in a *mezzanine entresol*, or *half-story*, as commonly adopted on the Continent, and obtained by giving only the necessary height to larders and the smaller offices; but the kitchen is, as it ought to be, a lofty apartment.

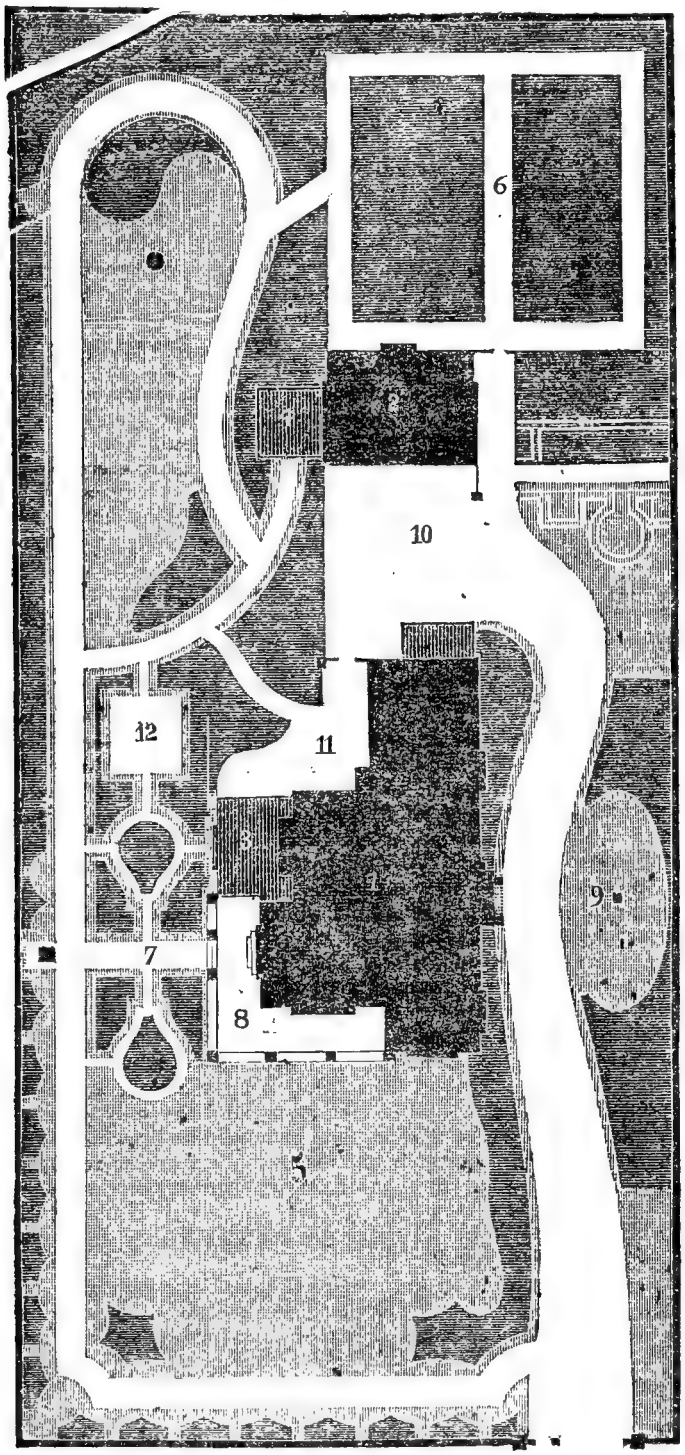
"The windows of the dining-room open upon a terrace (8), flanked by the conservatory (3), and ornamented with vases of suitable plants. From this terrace a few steps lead down to the flower garden (7), and the lawns (5), which are also edged with beds of bulbous or other flowering roots; the verge is dotted with Roses and other deciduous standards, selected chiefly to please the eye, but not always rejected because they bear something ultimately beneficial.

"On the northern lawn stands a forest Elm, under the grateful shade of which the summer air is breathed with sensuous delight. Mounds again afford shelter; and, though out of sight, not wholly out of mind, there is the little kitchen garden. System, however, is seldom more serviceable than in horticulture. An experienced nurseryman once told me that he could make a

* *A House for the Suburbs, Socially and Architecturally Sketched.* By Thomas Morris. London: Simpkin & Marshall.

useful garden in a space not larger than a butcher's tray, and I therefore resign the subject to professional skill."

A PLAN OF THE SITE OF A HOUSE, OR MANSIONETTE, NEAR WIMBLEDON PARK, SURREY.



1. House.
2. Stables.
3. Conservatory.
4. Vinery.
5, 5. Lawns.
6. Kitchen Garden.
7. Flower Garden.
8. Terrace.
9. Lamp.
10. Stable Yard.
11. Kitchen Court.
12. Jet d'Eau.

All this is unexceptionable; but Mr. Morris is not contented with being an architect, but claims to be a landscape gardener. Nor does he stop there; for he asserts that none but an architect "can rightly conceive the scenic effects of and from a house."

From this opinion we totally dissent. An architect may have taste sufficiently correct to determine that a group of trees should be placed here; that a mass of evergreens should be placed there, and so on: but that is not all that is required in a landscape gardener. He must know the form of each tree and shrub, the tints of its foliage in various seasons of its growth, so that the grouping and the colouring may harmonise and contrast appropriately; he must know the soil each thrives in; he must know the colours of flowers, the periods of their blooming, and their habit.

Now, who knows an architect so gifted? We have known many architects who could draw a geometric garden; but we never knew more than two who could plant it. Any one, architect, painter, or dyer, can say with precision red should be here, and yellow should be there; but how many of them could tell which flowers could be best employed for the purpose?

We might reverse Mr. Morris's proposition, and maintain that every landscape gardener ought to give the plan of the house about which he had to arrange the grounds, and we might quote Brown, Repton, Loudon, and some others who did so; but we have seen enough of the shortcomings, both of architect-gardeners and gardener-architects, to make us conclude that the professions had better be distinct, and that a professor of each better be consulted before the situation of the house be fixed; and when fixed it is the office of the architect so to arrange the house that the windows of the most important rooms look upon the most pleasing portions of the ground; and it is the office of the landscape-gardener to decorate those portions, and all other parts of the surrounding grounds.

The Cook's Own Book.*—This is one of a series of small "Household Manuals," and is prepared in the catechetical style, the advantage of which we never could see. In educational books the question assists the memory of the pupil, and is, consequently, admissible; but we can hardly imagine the head of a house putting his wife or his cook through series of examinations in domestic management, as he would his children in the Church Catechism.

CULTURE OF CAMPANULA PYRAMIDALIS.

Will you tell me how to treat *Campanula pyramidalis?* Am I wrong in cutting it down? How many stems may be left on a strong plant? Does it require heat? The plant I cut down is covered with young shoots, but has scarcely any blossom.—A. B., Subscriber.

[It is rather early to expect blossoms yet. This plant generally looks best when grown with a single stem. On a very strong plant from three to five stems might be grown; but it is rare that these will rival the one magnificent shoot, covered with bloom from near the base to the summit, and some six feet in height. The plant requires no heat, but when in pots in winter should be kept from frost and excess of damp. You did right in cutting down your plant when done flowering. When it broke, the shoots should have been thinned out. Young plants flower best. Thus the thinnings of the shoots placed in sandy soil under a hand-light, when an inch or two in height, will soon strike. These may either be potted, and grown on in a shady place, or, what is better, be turned out into a bed of rich, mellow compost, and encouraged to grow during the summer by due waterings. These lifted carefully with balls, and transferred to eight-inch pots, in September, and kept in a dry, cold pit over the winter, will bloom finely early next summer. A part may be left in the ground, protected from slugs by rough coal ashes, and from severe weather by a few Laurel boughs stuck round them, and be potted in spring. As soon as these begin to throw up the main stem, any competitor-stems should be removed; and these and other little bits make cuttings for a crop the following year, and will permit throwing away the old plants when done flowering.]

POLYANTHUS FOR BEDDING.

Mr. W. Wooler's hose-in-hose yellow Polyanthus, of which he writes at page 133, is certainly a great novelty, and, as far as we can judge from a pair of pips, is unexceptionably good. The pollen of any one kind of garden Polyanthus, however, has no more influence in producing cross-bred seedlings than the influence of the moon and other planets; and the same is true with all the cultivated Dahlias, with Scabious, and all the garden Marigolds. Even in the endless turnings among the gay and brilliant Cinerarias, the pollen of one kind has about the same force on another as plate-powder: at least Mr. Beaton says so, and he ought to know, for he has been experimenting on pollen hard upon forty years.

* *The Cook's Own Book:* A Manual of Cookery for the Kitchen and the Cottage. By Georgiana Hill. London: Routledges.

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page* 121.)

STRAWBERRIES.

Aberdeen Seedling. See *Roseberry.*

Admiral Dundas.—Fruit very large, roundish, irregular and angular, inclining to cockscomb shape; the smaller fruit conical. Skin pale scarlet. Flesh firm, juicy, brisk, and highly flavoured.

This is the best of all the very large strawberries, and was raised by Mr. Myatt.

Ajax.—Fruit large, irregularly-roundish, very deeply furrowed. Seeds deeply imbedded, with prominent ridges between them, which gives the surface a coarse appearance. Skin dull brick-red. Flesh deep red, and solid throughout, juicy, briskly flavoured, and tolerably rich.

The plant is of a luxuriant habit, and bears badly in the open ground; but when grown in pots it produces an abundance of fruit, and is a good forcer.

Alice Maude. See *Princess Alice Maude.*

Belle Bordelaise. See *Prolific Hautbois.*

Bicton Pine.—Fruit large, roundish and even in its outline. Skin pale yellowish-white, sometimes faintly tinged with red next the sun. Flesh tender and soft, juicy, brisk, and with a pine flavour.

Black Pine. See *Old Pine.*

Black Prince (*Cuthill's Black Prince*).—Fruit small, obovate. Skin glossy, of a dark red colour, which, when the fruit is highly ripened, becomes almost black. Seeds rather prominent. Flesh deep orange, brisk, rather rich, and with a little of the pine flavour.

A very early strawberry, a great bearer, and well adapted for forcing.

British Queen (*Myatt's British Queen*).—Fruit large, sometimes very large, roundish, flattened, and cockscomb shaped, the smaller fruit ovate or conical. Skin pale red, colouring unequally, being frequently white or greenish-white at the apex. Flesh white, firm, juicy, and with a remarkably rich and exquisite flavour.

The great fault of this variety is that the plant is so very tender; it will not succeed in all soils and situations, and it is generally an indifferent bearer.

Captain Cook.—Fruit large, roundish-ovate, and irregular. Skin deep scarlet, and frequently greenish at the point. Flesh pale scarlet, solid throughout, juicy and richly flavoured, but not of first-rate quality.

Carolina. See *Old Pine.*

Carolina Superba.—Fruit very large, ovate, sometimes inclining to cockscomb shape, with an even surface. Seeds not deeply imbedded. Skin pale red, extending equally over the whole fruit. Flesh clear white, very firm and solid, with a fine vinous flavour and rich aroma, equalling the British Queen.

The plant is much hardier, a freer grower, and better bearer than British Queen.

Comte de Paris.—Fruit large, obtuse-heartshaped, even in its outline. Skin scarlet, becoming deep crimson when highly ripened. Flesh pale red, and solid throughout, with a briskly acid flavour.

This is a favourite with those who prefer a brisk fruit; and it is an excellent bearer.

Crimson Queen (*Doubleday's No.* 2).—Fruit large, cockscomb shape, very much corrugated and irregular, with a coarse surface. Skin bright cherry-scarlet. Flesh red throughout, solid, and firm, with a briskly acid flavour.

This is a late variety, and a great bearer.

Cuthill's Black Prince. See *Black Prince.*

Cuthill's Prince of Wales.—Fruit medium sized, conical. Skin bright red. Flesh firm, very acid, and without much flavour.

Cuthill's Princess Royal. See *Princess Royal of England.*

Deptford Pine.—Fruit large, and cockscomb shaped, the smaller fruit conical. Skin bright scarlet, glossy as if varnished, and even. Flesh scarlet, firm, and solid throughout, with a rich vinous flavour, similar to British Queen, with a little more acid.

A valuable firm-fleshed, highly-flavoured strawberry. Excellent for preserving.

Downton. See *Downton Pine.*

Downton Pine (*Downton*).—Fruit medium sized, conical, with an even surface. Skin deep scarlet. Seeds imbedded. Flesh scarlet, firm, and solid throughout, briskly and richly flavoured.

Doubleday's No. 2. See *Crimson Queen.*

Duchesse de Trévise (*Marquise de la Tour Maubourg; Vicomtesse Héricart de Thury*).—Fruit above medium size, conical, with an even surface. Skin deep scarlet, becoming deep red as it ripens. Seeds yellow, slightly imbedded. Flesh pale red throughout, firm and solid, brisk, sweet, and richly flavoured.

This is an extraordinarily abundant bearer, and a valuable variety for general cultivation.

Eleanor (*Myatt's Eleanor*).—Fruit very large, conical or wedge-shaped, regular and handsome in its outline. Seeds considerably imbedded, with prominent ridges between them, which gives the fruit a coarse appearance on the surface. Skin scarlet, changing as it ripens to deep crimson. Flesh scarlet, and becoming paler towards the core, which is large and hollow; subacid, and with a little of the pine flavour.

A large and handsome strawberry, but not possessing any other merit.

Eliza. See *Myatt's Eliza.*

Elton (*Elton Pine*).—Fruit large, ovate, frequently cockscomb shaped, with imbedded seeds, and prominent ridges between them. Skin bright crimson, and shining. Flesh red throughout, firm and solid, with a brisk subacid flavour.

A valuable late variety, and an excellent bearer.

Elton Pine. See *Elton.*

Exhibition. See *Great Exhibition.*

Filbert Pine (*Myatt's Seedling*).—Fruit above medium size, conical and regular in its outline. Seeds large and prominent. Skin dull purplish-red next the sun and pale red in the shade. Flesh pale, pink at the core, firm, solid, rich, and briskly flavoured.

A very prolific and excellent late variety.

(*To be continued.*)

WHAT TO LOOK FOR ON THE SEASHORE.

(*Continued from page* 136.)

Radiata (*Continued*).

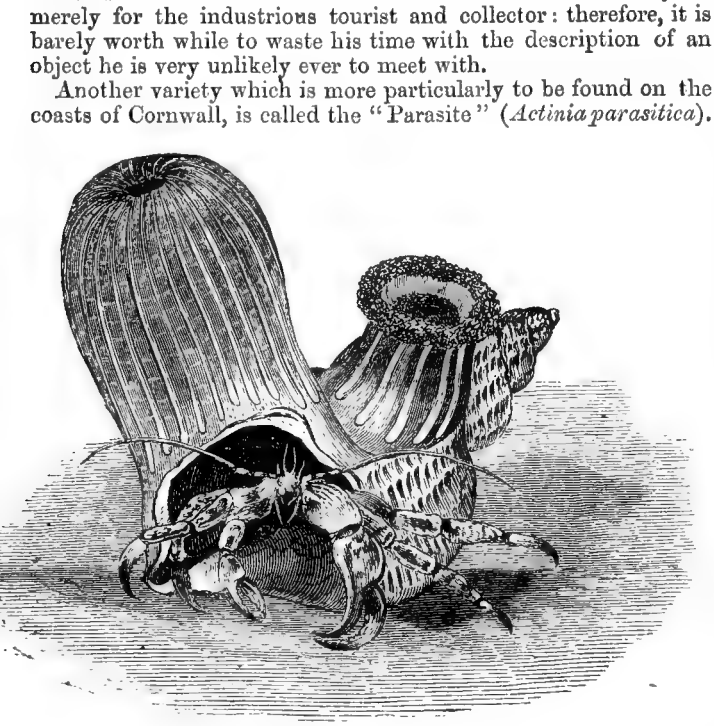
Although in the previous chapter we gave a general account of Sea-Anemones, and detailed several species, it will be as well, perhaps, to particularise a few others, which the collector is likely to meet with, and to mention their favourite haunts; although all the British species of these zoophytes have occasionally been found on every part of our coasts. The first specimen I would draw attention to is the Green Club-rayed Anemone (*Corynactis viridis*), and is chiefly to be met with on the coasts of Ireland, where it is abundantly plentiful, hundreds of them being seen in a single pool. It is an extremely beautiful little creature, the body and disk being of a bright grass-green, with the exception of a brownish ring which encircles the mouth; the tentacles are short and thickish, and are also of a brownish tint, their summits being tipped with a brilliant rose-colour. Some, however, of this species have been found quite transparent, and of a flesh-colour. This is looked upon as a diseased condition of the creature, and has been compared to that of those singular members of the human race known as Albinos. This zoophyte is strangely given to vary its form, exhibiting such strange and fantastic variations of shape, that to give any description that could be depended on, as that the tourist would witness

on his first interview with this small Proteus, would be impossible; although, on watching him for a short space of time, he might choose to assume the very shape required. Whether he be a bag, a cup, or an hour-glass, it is equally the same to him. His favourite position, however, is to hang from a portion of rock in the likeness of a Daisy. This specimen must not at the same time be confounded with the Daisy Anemone, which we shall mention presently.

There is another species of zoophyte called the Sea Carnation (*Actinia dianthus*), from its supposed resemblance to that flower. This specimen presents so very charming an appearance as to have earned the complimentary appellation of "*Pulcherrima Actiniarum*," (the most beautiful of the Actiniæ,) and it can certainly lay some claim to the title. Its peculiar beauty consists in its being furnished with innumerable layers of tiny tentacles round the margin of the disk, and which present the appearance of a thick fringe. The Sea Carnation would seem to be in some measure distinct from the ordinary members of the class to which it belongs, inasmuch as it is permanently attached to the object it adheres to. Nor is it possible to detach it without serious injury to the base. For this reason most probably it is, that these elegant creatures are always found in groups, one of larger size in the centre, which may be looked upon as the "Paterfamilias" of the colony, surrounded by numbers of others of smaller growth; and if not a *happy*, although there is no reason to doubt that, they certainly are a very *beautiful* family. It is not uncommon, however, that their compulsorily crowded position results in two or three of the younger ones uniting and becoming one; but the apparent inconvenience of such an alliance does not seem to be felt by the contracting parties, or to have any ill-effect either upon their health or condition. The Sea Carnation is found on rocks and shells, either in the deep water, or in localities within the low-tide mark. It is not confined to any one coast in particular.

Another specimen, the Sea Marigold (*Actinia calendula*), is sometimes seen on our shores; but being for the most part, and, unless by accident, invariably a resident of the deep water, and having, into the bargain, no particular speciality to call for further detail, we shall dismiss it; for it must be borne in mind that these observations are not intended for the reader of science, but merely for the industrious tourist and collector: therefore, it is barely worth while to waste his time with the description of an object he is very unlikely ever to meet with.

Another variety which is more particularly to be found on the coasts of Cornwall, is called the "Parasite" (*Actinia parasitica*).



This creature has, it would appear, a great fancy for locomotion, and being fully conscious of the shortcomings of its own power in that respect, very sensibly attaches itself to the back and claws of the crab, or to the shell of a mollusc, and in this manner enjoys the pleasure of travelling without fatigue. It is columnar in form, and has a hardish skin covered with small warty excrescences. In our drawing a hermit crab is represented inhabiting a buccinum shell, with two specimens of *A. parasitica* attached.

We come now to the Daisy Anemone (*Actinia bellis*), which is also most common to Cornwall, but is very frequently found on any of the southern coasts, its location being ordinarily in crevices in the pools. The Daisy Anemone is an extremely beautiful creature; it has a very small base, which rises cylindrically to the disk, and presents when expanded perhaps the most perfect resemblance to a flower of any of the species. The slender body, stalk-like, sustains the delicate head starred with a coronal of variegated rays or tentacles. It is frequently seen growing in the fissures of the rocks, the stem or body being concealed within, the graceful head only extending, and might very well, when expanded, be mistaken for a bright marine flower growing out of the crevice. The Daisy Anemone has the privilege, and seems to enjoy the exercise, of varying its form at will.

We shall just briefly mention one more specimen of the Actinia, not on account of its particular beauty, or the likelihood of its being met with, but because it is the largest of the species known to the British coasts. It bears the title of the "*Actinia Tuediæ*," which was given to it by the able zoologist Dr. Johnston, from *Tuedia*, the ancient name of Berwick, off the coast of which district it is chiefly found. It is, however, by no means common, as it always resides in the deep water, can only be procured by the aid of a hook, or drag, by which process the animal is usually mutilated and rendered altogether unfit for examination. The *A. Tuediæ* is a clumsy-looking creature, of a brownish-red colour. Its disk when expanded measures about four inches across, having tentacles about two inches long, although their length decreases gradually towards the outer rim.

We shall add nothing more to our sketch of the Actiniæ, nor must it be supposed that we have entered into full and minute details of this interesting class of the zoophytes; but we trust enough has been said to arouse the interest, and stimulate the curiosity of the sea-side tourist, and in some degree to assist him in his investigations.—W.

(*To be continued.*)

EARLY-FLOWERING HARDY PLANTS.

Your correspondent "H. N. E." wishes to enlarge the list of plants flowering between the 1st of January and the 1st of May; and to his own list he may add the following:—*Arenaria Calabrica*, *Corchorus Japonica*, *Berberis Japonica*, *Pyrus Japonica*, *Soldanella alpina*, *Rhododendron Caucasicum pictum*, Sweet Woodruff, *Bulbocodium vernum*, Peach (double-flowering), *Ranunculus aconitifolius*, Sea Pink, *Scorpia senna*, Spurge Laurel.

I have put down in this list *Berberis Japonica*, because it flowered with me; but it is right to say it was in a pot, and had been partially protected during the winter.

I should not think of troubling you with this, but that I have found your lists of plants flowering at certain seasons very useful; and as I have all your numbers bound up, I refer to your last year's lists as guides for this season's ornament.

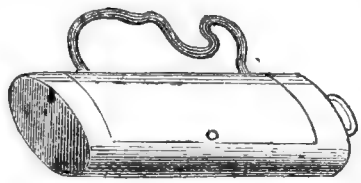
Your correspondent has put in his list *Erica cineria alba*. I have never, I think, seen it flower as early as any time in May; and on looking for it in *The Cottage Gardener's Dictionary*, I cannot find our native Heaths named at all, though under the heads of "Heather" and "Calluna" we are referred to "Erica," where I could not find them.—D. C. M.

THE COLLECTION AND PRESERVATION OF PLANTS.

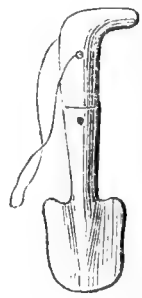
So numerous are the suggestions that have been made, and diverse the processes recommended to be pursued in the preservation of plants by different botanists, that it will be quite impossible for us, with the small space that we have at our disposal, to do more than give a brief outline of such a mode of procedure as we think to be the most simple and generally successful. It is not possible to lay down any process adapted for the treatment of all plants; the colours of some are so fugitive that it is impossible to preserve them by the ordinary mode of procedure, and practice alone will render the collector familiar with the best methods to adopt in such cases. The following materials and instruments will be found necessary to any one contemplating the collection of an herbarium. A vasculum, trowel or digger, field-book, drying paper, mounting paper, some wooden boards the same size as the drying paper, a lancet-pointed knife, a forceps, and a lens, or small microscope; the

latter of which we have found to be the most convenient. It consists of a lens, to which is attached a brass ledge; along which, by means of a screw, a moveable button traverses: through this button the forceps holding the object is inserted. It possesses the advantage of keeping the object stationary whilst under examination, and admits of the employment of a better light. The following description of these articles is taken from the excellent Manual by Professor Balfour:—

The Vasculum is a japanned tin box, which should be of such a length as to receive a plant the full size of the herbarium paper: it ought to be convex on both sides; its capacity may vary according to the fancy of the collector, but one about 20 inches long, by 8 or 9 inches wide, and 5 deep, will not be found too large: it should be furnished with a handle at one end, and a couple of rings, through which a leather strap can pass to attach it to the shoulders; the lid should be large and fasten with a little catch.

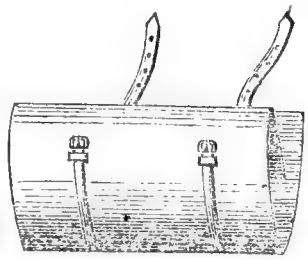


The Trowel, or Digger, should be about 7 or 8 inches long; the spud 2½ inches long, 2½ inches wide at the top, narrowing gradually to 2 inches at the bottom. It should be provided with a leather sheath, fastened to the waist by a strap, and the trowel also attached by a long string.



The Field-book is intended to press such specimens as will not carry home without undergoing injury. Its outer cover may be formed of two very thin boards, and secured by straps so as to give pressure. It should be enclosed in an oilskin case to protect from wet; and may be carried in the pocket, or attached to the neck by a string.

Drying Paper.—We have found Benthall's paper to be excellent for this purpose, and always employ it. A sufficient stock should be provided, so as to have one set of papers drying whilst the rest are in use. A convenient size for general purposes is about 18 or 20 inches long, and 11 or 12 broad. It is as well, however, to be provided with more than one size.



The Wooden Boards should be the exact size of the paper; twelve should be three-eighths of an inch thick, and two, which are to be employed on the outside, three-fourths of an inch. Some prefer sheets of tin to the use of boards on the inside, and they are certainly lighter and more convenient for carrying when on an excursion.

The Collection should always be performed during fine, dry weather, as plants never keep well when collected wet with either rain or dew. When practicable the entire plant should be collected, and the roots be carefully washed to remove any dirt that may adhere to them, and then dried. In cases where the entire plant is too large for collection, such portions as best illustrate its *generic* and *specific* characters should be gathered. In most cases it is necessary to have specimens of both flowers and fruit, particularly in the orders Leguminosæ, Umbelliferæ, Compositæ, and others. In cases where the flowers appear before the leaves, it will be necessary to preserve the young twigs bearing the fully developed leaves as well as the flowers; and when the sexes exist in separate flowers, both male and female flowers should be collected. When bulbs or tubers abound in mucilaginous matter, it will be found advantageous to enclose them in a little paper so as to keep the drying paper free from dirt. In the collection of Ferns two fronds should be selected—one to exhibit the under surface with the reproductive organs, and the other to show the upper surface; a portion of the rhizome should also be preserved. Grasses and sedges are generally easy of preservation; the entire plant should be collected, and when it exceeds the length of the paper it may be bent and rebent without injury. If on returning from an excursion, circumstances do not admit of immediate pressing, avoid putting the plants in water, *they will keep much better in the vasculum;* and should the weather be dry and sultry, they may be *sprinkled* with a small quantity of water. When portions of shrubs, or plants of woody texture, are required to be preserved, the bark should be slit up and the woody portion removed.

The Pressing.—In reference to the best means of effecting this branch of the process, the greatest difference of opinion exists. Balfour says the pressure ought not to be less than 100 lbs., and recommends the use of heavy weights to effect it. He also suggests the use of a rope tightened by a rack-pin instead of leather straps, attached to the boards used as a press when on excursion, as in case of an accident the straps may be difficult of replacement. Withering considers the pressure should be gradual, and this accords with our own experience. Some make use of a press, and obtain the requisite degree of pressure by the employment of screws or wedges; others adopt the more simple contrivance of a flat board and some books, which we have found to answer very well. We have even heard of a gentleman acting the part of a press himself, by reposing at night on the plants he had collected during the day.

In our opinion, one of the simplest and best methods consists in the use of a box exactly the same size as the paper and board employed; the requisite degree of pressure being obtained by the gradual addition of pebbles or sand, and of these we have found the former to be the more convenient.

Arranging and Drying.—First place a parcel of four sheets of the drying paper upon one of the two thicker boards; then take a sheet of the drying paper and lay it evenly upon it; and having selected a plant for preservation, place it on the inside of the right-hand sheet, and arrange the different parts of the plant so as to illustrate its principal generic and specific characters, imitating as much as possible the natural appearance of the plant; as each part is arranged, retain it in its assigned position by means of small pieces of paper about four inches square, upon which a small weight may be placed. Having completed the arrangement of the plant, remove the weights one by one, and allow the fly sheet to cover it; upon this place another parcel of four sheets, and proceed as before to lay out another plant. When as many as a dozen plants have been arranged in this manner, place one of the thin pieces of wood or tin upon them, and proceed as before until a sufficient number have been prepared for pressure; now place upon this one of the thick outer boards and the box containing the pebbles, which should be added to from time to time that the pressure may be gradual. After twelve hours' pressure, remove each plant with the forceps to dry paper, and proceed in exactly the same manner as before described, taking care to open out all crumples and rectify previous mistakes, arranging the plant as much as practicable in imitation of Nature. After intervals of twelve hours the same process should be repeated, gradually increasing the pressure until the plants are dry, which will generally be the case in a week or ten days, but varies with different plants. Some will dry with only one or two changings, whilst others occupy a long time; and some, as Orchids, Sedums, and Sempervivum, are exceedingly difficult to dry at all. To accomplish the drying of these heat is generally employed; and they are submitted to a process of ironing with much success. Some speak very highly of this mode of proceeding in general, being of opinion that it preserves the colours of the flowers better than the ordinary process. From our own experience it seems highly probable that different flowers require particular temperatures to succeed well in preserving their colours; and the method of treatment peculiar to each case is only to be acquired by practical experience. Some succeed in preserving the colours very well by the use of heated sand.

Preservation.—When the specimens have been sufficiently dried, they should be carefully transferred with the forceps to a sheet of good thick white paper, in which they may either be preserved loose, or fastened to the right-hand sheet of the paper by means of thread, glue, or gum. Of these we prefer the former, as the two latter are apt to attract insects, which will in a very short time completely destroy an herbarium; to guard against their attacks, it is as well to brush the plants over with a spirituous solution of bichloride of mercury, consisting of ʒ ij. to the Oj. Some prefer keeping the plant loose in the paper; they are certainly easy of examination under these circumstances. The botanical name, natural order, habitat, and date of collection, together with any other note of interest, should be written on the right-hand corner of the inner side of the sheet. The natural

orders that generally suffer most from the attacks of insects are Cruciferæ, Euphorbiaceæ, Gentianaceæ, Umbelliferæ, Salicaceæ, and Liliaceæ. Finally, having arranged the herbarium, it should be kept in a dry place, and frequently inspected.—(*The Chemist and Druggist.*)

PINCHING BACK FRUIT-TREE SHOOTS.

On some trained wall trees (Plums) now bearing their first crop, are strong shoots coming away from the spurs that blossomed, the fruit forming at their base. Are these vigorous shoots drawing nutriment to or from the growing fruit? Should I nip them off now? As a general rule, is it advantageous to nip off now all shoots to which the knife would be applied at the winter pruning, and would the trees be gainers thereby? Would this rule hold good with all fruits?—An Inquirer.

[The pinching must be regulated by the vigour of the tree. In the case of vigorous shoots issuing from fruit-bearing spurs, they should be pinched as soon as they have made three leaves. As a general rule, it is advantageous to pinch, in summer, all shoots to which the knife would be applied at the winter pruning, with the exception of the terminal or leading shoot, which should be left undisturbed.]

MEETING of the ENTOMOLOGICAL SOCIETY.

The May Meeting of the Entomological Society was very fully attended, and was presided over by J. W. Douglas, Esq., the President, who exhibited a living example of *Homœusa acuminata*, found in a nest of *Formica fuliginosa* near Mickleham, and specimens of *Clariger sètaceus* from the same locality.

Mr. Stevens exhibited a large box of Coleoptera, collected near Rio by Mr. H. Squire.

Mr. Ianson exhibited *Petaria nubeculosa*, and other Lepidoptera and Coleoptera, sent from Perthshire by Mr. C. Turner.

Mr. Scott exhibited a specimen of *Bolitobius inclinans* (Grav.), one of the small species of Rove Beetles; and called attention to the remarkable development of the basal joint of the intermediate tarsi in this rare insect, which had not been noticed by any author who had described the species. He also exhibited a specimen of *Mycetoporus lucidus* from Coombe Wood, and a singular variety of *Elachista gangabella*, in which the usual white farcia on the fore wings was wholly wanting.

Mr. Saunders exhibited some singular galls found on roots of Oak and Ash trees, but from which he had not yet reared the insect; and a Beetle apparently of the genus Urodon, which in the larva state inhabits one of the five cells in the seed-vessel of a Mesembryanthemum, the other four cells being forced together by the growth of the larva. Mr. Saunders also exhibited an apparently new species of Harpalus taken near Killarney by Mr. Bouchard.

Mr. Henry Cooke, of Brighton, exhibited a singular hybrid of the genus Ephyra, which had been obtained in the following manner:—Out of a number of specimens of *Ephyra orbicularis* and *trilinearia* which Mr. Cooke had shut up in pairs, one pair coupled; and the female (belonging to the latter species) laid eight eggs, all of which hatched, and the larvæ fed readily. Some of the larvæ were precisely like the larvæ of *trilinearia*, and some precisely like those of *orbicularia*, others were intermediate between the two. All fed up properly and went into pupæ, but only one Moth, and that slightly crippled, made its appearance. This insect bore no resemblance to the mother (*trilinearia*). Indeed it seemed far more like *porata* and *punctaria* than either of its parents; and had it been taken at large it would have caused considerable discussion as to its real character.

Mr. Bond exhibited a specimen of *Smerinthus ocellatus* having one side of the abdomen perfectly white; in all other respects the insect was of the usual colour.

Mr. Rye exhibited a specimen of *Euryporus picipes* taken at Holme Bush, near Brighton; also a fine series of *Ptinus Germanus* from Purfleet, and of *Badister peltatus* taken near Boston.

Mr. Saunders communicated an extract from "Fröebel's Travels in Central America," on species of Ants found in New Mexico, which form their nests exclusively of small stones of one kind of material, chosen by the insects from the various components of the sand of the steppes and desert. Thus in one place small imperfect crystals of red transparent garnets only were employed in the construction of the anthills, and any quantity of them could there be collected. Mr. Saunders also read an extract from the same author on a poisonous caterpillar found at San Antonio. Mr. Saunders read a paper on the genus Erateina, a singular and beautiful genus of tailed Moths found in the Andes, in which six new species were described.

Part 5 of the current volume of the Society's "Transactions" was announced as ready for delivery.

THE ROSE OUT OF DOORS.

(*Continued from page* 134.)

Propagation.—*By Cuttings in Pots.*—The best sort of cuttings for this plan are short stubby shoots that have the bottom part rather woody. The right season, about the middle of June or the beginning of July; and the best situation to place the cuttings in is either a frame or a pit on a gentle bottom heat, the pots plunged in coal ashes. The proper sized pots are such as are five inches across; and the soil a moderately light rich compost of loam, leaf mould, or very rotten dung, with a slight addition of river clean sand. Fill the pots to within an inch of the rim, and fill up that inch with fine, clear, white sand; and give a gentle watering to settle the sand firm. All these materials being in readiness, then select the cuttings, and cut the bottom clean across, and trim off all the lower leaves, leaving at least two at the top. Then plant them quite up to the leaves immediately before the bark shrivels, with a small stick pressing the earth close to the bottom of each cutting. Place the cuttings close to the side of the pot, and arrange the leaves so that they point inward to the centre of the pot. Give a second gentle watering; and as soon as the leaves are dry, place the pots in the frame or pit already filled so full of heating and plunging materials, that when the pots are plunged the cuttings will be near to the glass. Then shade from sun for a month; by which time the cuttings will have callosed, and will then bear more light and air. When roots are emitted, pot them off into small pots, and replace them in the pit, shading for a few days; then harden them off by degrees, and give abundance of air. When they are able to bear full exposure, plant them out where they are to bloom. Tender sorts, such as China and Tea varieties, may be repotted and kept in the pit through the first winter.

Cuttings in the Open Air.—The best situation for this purpose is a shady border behind a wall, or closely clipped hedge. If the soil is light, it will only require digging and making fine. Prepare the cuttings the same as for pots, and as early in the season as the state of the wood will allow, though I have been successful with cuttings put in as late as September. If the soil is heavy, place some sand against the cuttings when planted. Open a trench at the end of the border, just in the same manner as you would do to plant Box-edging. Place the cuttings about an inch and a half asunder against the bank, and as deep as those in pots. Then with your spade put the earth to them, and press it firmly with your foot. Add more earth till you can chop down a second upright bank six inches from the first row of cuttings. Plant the second row, and so proceed till all that you intend to plant are finished. Cuttings that are put in early will be rooted in a few weeks, and should then be taken up carefully, and either potted or planted out in nursery-rows in an open situation. Late-put-in cuttings may remain till the following spring, when they may be taken up and planted with the early transplanted plants where they are to bloom.

By Layers.—When Roses on their own roots are required in large quantities, the way with nurserymen is to choose a piece of ground especially for that purpose, and on it to plant in wide rows the required sorts, and then to cut off the tops close to the ground in March. The shoots that the Roses send up are layered in autumn. When the season for this operation has arrived, make a number of hooked pegs of sufficient length to hold the layer firmly down, then take hold of a shoot and trim off the lower leaves, if any are on it, and then with a sharp knife make a slit or tongue half way through the shoot. Put a piece of wood or a small stone in the slit to keep it open, and then bend the shoot down to the soil, a thin layer of which having been previously removed. When the shoot is so bent take a hooked peg and thrust it down into the soil, catching the shoot as it descends. Then cut off the top of the layer and proceed to the next shoot till all round the plant are layered. Afterwards cover them all with fine soil an inch thick, and press it firmly down. If the weather is dry give a good watering, and so proceed till the whole number are layered. They require no further care excepting weeding till the following autumn, when, if they are moderately rooted, they may be taken

up and planted in nursery rows for a year, and afterwards planted in their final situation. Some kinds require two years before they root well enough to be removed, and others, such as the Moss Roses, cannot be increased by cuttings, and, therefore, layering must be resorted to. An amateur or a cottager, however, need not resort to this wholesale mode of layering. They may adopt the same method of tongueing, hooking down, and covering with any single plant they may possess, using only such branches as may be near the ground, and allow these layers to remain two years before they take them away from the parent plant to transplant them where they are to grow and bloom.

By Grafting.—The first point to attend to, is to choose a right kind of stock to graft on. The Manetti stock has been praised highly for this purpose by Mr. Rivers, and other large eminent growers, and in some soils it answers admirably. Others use the common wild Dog Rose of our hedges, which also suits well, and can be easily procured. For this purpose I have gathered the hips of this strong-growing wild Rose, cleaned the seeds out, and sown them, and when the seedlings were strong enough, grafted any kind of good Roses on them. Seedlings have the advantage of having better roots, and no trouble in seeking for them in out-of-the-way places. The stocks having been procured as early as possible after the leaves are fallen, plant them out in rows two feet apart, on good, rich, ground. Here I would remark, that grafting Roses can only be resorted to, to have dwarf trees, and the grafts should be close to the ground, so that the graft may in time send out its own roots, and thus be independent of the stock. In consequence, stocks for grafting need not be strong nor thicker than the scion or graft. Good healthy roots with plenty of fibres may be used as stocks with great success, so that any amateur may easily find stocks to graft his new and choice varieties on.

When the stocks are planted then look out for some good tenacious clay, and having got it let it be well worked, clearing out any stones or bits of sticks from amongst it. Work it well till it is soft, and, like dough, of equal consistency throughout. Add some horse droppings and cow manure, and mix them well and thoroughly with the clay. This mixture prevents the clay from cracking. Have a garden-pot handy filled with dry ashes; and after the clay is applied to the graft, sprinkle a little of the dry ash on it, and it will enable the grafter to press the clay more firmly, and finish off the ball neatly and closely to the graft.

Mode of Grafting.—Choose the scions as near as possible of the same thickness as the stock. The season for grafting is when the sap begins to rise, which in the Rose is, perhaps, earlier than any other kind of tree that is propagated by grafting. Take the scions off in January, and lay them in behind a north wall. Then in February, if the weather is mild, proceed to graft on the stock. The best mode of grafting is the one called the whip or tongue method. All being ready, first, with a bright sharp knife cut off the stock nearly horizontally, then cut off a thin slice on one side. Let this be a clean, smooth cut, to fit exactly with another clean cut off the scion, which must be now prepared. See that the bark of the stock and the bark of the scion fit together exactly, and also leave the lowest bud or scion at its base. Then cut a notch or slit on the stock, and a corresponding slit on the scion, and slip the notch on the scion into the slit on the stock. The graft is then ready to be tied. Use broad soft mat for tying with, and do this part of the operation neatly and quickly. Then immediately clay the graft as described above, and when a row is completed cover the balls of clay with soil, leaving just the tops of the scions above the soil. This covering keeps the ball of clay moist, and thereby preserves the scion alive till the union takes place.*

By Budding.—This mode of propagating the Rose is more used by nurserymen than any other. Where standard Rose trees are required, it is the only mode that is successful. The best stock for standards is, unquestionably, the wild Dog Rose. These should be procured early in November, and planted in nursery rows immediately. Let the roots be pruned in, and the tops cut off to the desired height, some for tall standards to form weeping Rose trees, six feet or more high; others for ordinary purposes four feet high; and others for half-standards two feet high. Keep the different sizes separate. Choose, if possible, only such stocks as have fibrous roots; such as have large knobs of roots, though they may grow, yet they seldom make good heads and often die prematurely; therefore, throw such away at once. In planting give to each stock about half a spadeful of well-rotted manure, treading them as they are planted firmly down with the foot. Keep the surface well hoed during the spring and summer, and if any shoots spring out of the stem below the top three or four, rub them off as soon as they appear. If these stocks make shoots strongly the first year, they may be budded at the proper season. Buds take most easily on the same year's young shoots; therefore, if any of the stocks should not grow strong enough for budding, let them be closely cut in the autumn following, in order that they may make stronger shoots. The stocks having grown well, examine them about the middle of July, and if the sap is flowing freely, the bark will easily part from the wood. Then is the time for this operation.

Procure a good budding-knife, make the blade very sharp; also, have ready some soft Cuba matting, or some of the best Russia mat, thin, smooth, and pliable, or use thick worsted-thread. Cut it into proper lengths, and keep it just moist ready for use. These articles of the best quality being ready, proceed with the work by making a shallow, longitudinal slit on a smooth part of the bark of the stock, as near the main stem as is convenient: this slit should be about an inch and a half long. Then cut this slit across near the top, and turn the knife, using the ivory end to raise the bark on each side of the slit. It is now ready for the bud. Take off a sound, plump bud, in a long, shield-like form; cut off the leaf, leaving part of the footstalk; raise the wood inside the bark of the bud at the upper end; by a smart twitch draw off the wood, leaving the bud full of wood inside. Sometimes the wood comes out of the bud also, it is then considered worthless and is thrown away. Open the slit and slide the bud down it to the bottom, and then cut off the upper part, just so as to fit into the cross cut on the stock. Then tie it moderately tight, and the operation is finished. I would remark, that the best part of the day for budding is early in the morning or late in the afternoon; though if the day is cloudy and moist the work may go on all the day. Great care must be taken to keep the shoots containing the buds to be used in a moist state. Should the weather be hot and dry, or very rainy, the buds should be sheltered with a thick leaf—of Laurel, for instance, tied on the stock above and below each bud; but if the weather is favourable such a precaution is needless. In a month or six weeks the buds should be examined; and if the wood on the stock has swelled much the ties should be taken off and retied loosely. It may be necessary to do this over again in the autumn, unless the bud has fairly taken possession of its new home, in which case the ties may be entirely removed; but if this is done too early the bark of the stock separates from the bark of the bud, and the bud often perishes. It is almost impossible to give true and explicit instructions in words how to perform such an intricate and delicate operation. The budder must try and try again till he is expert at it.

By Suckers.—Many kinds of Roses on their own roots throw up side-suckers at a little distance from the main plant. These may be taken up in autumn, and if strong enough may be planted at once where they are to grow. Weak suckers may be taken up at the same time, and planted in a bed in rows across it for a year or two till fully rooted, and should then be finally planted out. In all cases the tops of the suckers should be cut off, to cause side-shoots to be made. Sometimes a Rose-bush from neglect has spread wide. In such a case it is a good plan to take up the entire bush, and cut it into divisions, each with roots, and replant them in fresh, rich soil. By doing so a number of plants are made, and much finer blooms obtained. T. Appleby.

(*To be continued.*)

* The various modes of grafting were illustrated at page 72 of our present volume.

PROTECTING BROCCOLI IN WINTER.

Your correspondent, Mr. Neal, at page 123 of The Cottage Gardener, seems to think all might have saved their Broccoli if they had taken proper care. I have for one tried the plan recommended by him for many years, but it has entirely failed this year. I have never found it to answer well except when we have had a fall of snow previously, as they are very liable to damp off.—A Subscriber.

EVERGREEN UNDERSHRUBS FOR A PLANTATION.

Here are a few "evergreen undershrubs for a plantation" for your correspondent "F. C. E.," if you think them worth while publishing for him. "The abominable hares and rabbits" do

not touch them with me, and I find them love the deepest shade. I do not mean to put them in competition with those named by you in your No. of 15th May; but I have been so provoked by hares and rabbits, that I have been long looking for varieties which they will not destroy. I do not find *Berberis aquifolia* bear a dry, rabbit, sandy soil; and although the rabbits do not bark it, they have destroyed several young plants by perseveringly eating off the leaves out of mere mischief; but wherever I can get the plant to grow strong it is unhurt. "F. C. E." is safe in trying the following:—Box (an excellent underwood), *Aucuba Japonica*, *Gaultheria Shallon*, *Vinca major*, *Leicesteria formosa*.—D. C. M.

POINTS IN VINE CULTURE.

(*Continued from page* 116.)

Watering.—Vines, like everything else, require watering in dry weather, if the roots are as near the surface as they ought to be. If there are few roots within two feet of the surface, the watering will be less needed, and if given ever so carefully will have less influence. If, in the latter case, heated water is used, the heat will be absorbed before it reaches the roots; and if manure water is given the virtues of that will be absorbed by the superincumbent soil before getting deep enough. There is, however, just the chance, that the heat and the richness will entice the roots upwards. These remarks apply especially to Vines with their roots outside. Of course, when inside the house, waterings must be given as the soil gets dry; and one advantage of having them so planted is, that by judicious warm, rich waterings, you can, to a certain extent, force the roots as well as the tops. The time of watering Vines with their roots out of doors is a matter of some moment. Could I do as I liked, I would keep all rains and other waterings off Vine-borders outside; at latest after the middle of September, and especially all those that were intended to be forced. No greater mistake exists than the supposition that in these matters gardeners can have their own way if they are fortunate to hold a largish situation. The general labouring expenses are so great, that means of keeping borders dry, and yet admitting the sun when it shines, are generally pooh-poohed as unnecessary. I believe that in many small places there are much better means at command for such matters. There can be no question, that for such purposes, glass, tarpaulin, wooden shutters, and even thatched hurdles, would be extremely useful. By October a little litter could be placed beneath either of these, to keep the heat in. With such arrangements the roots will be sure to be moist enough in winter, and yet be comfortably dry instead of being in a wet, quagmire condition. For very late houses, such as the one referred to by "A Beginner," such means will also be of importance for keeping the Grapes long without damping, if plenty of air, and that moderately dried, is given inside. Such a border with a dry surface, and covered with dry litter, as so well recommended by Messrs. Bailey and Errington, will not only be warmer all the winter than a moist one; but shortly after shutting up the house for forcing, you can at once give a stimulus to root action, by a fair watering with weak manure waterings at a temperature of from 90° to 100°, and that heat will be retained for some time, owing to the dry covering being immediately replaced. Before such watering is given, the border should be slightly forked, so as not to injure the roots, and in order that the moisture may sink equally all over it. With such precautions, this early watering is of great importance. If the border is exposed it will generally be damp enough, and moderately-heated water could have no such influence. Without such precautions, the more moisture given to the border the greater will the amount of cold be by subsequent evaporation; and, therefore, all waterings given before the end of July ought to be warmer than that obtained from the tank or pond. In order that richness may be imparted by the showers of summer a covering of horse-droppings, sheep-dung, &c., may be thrown over the border when once the soil is well heated. Our correspondent will judge whether he can apply a good watering now with advantage. Keeping the above considerations in view, watering can be given at any time; but, provided the border is dry in spring, then the three most important times would be when the Vines were nearly starting, when they were setting, and when they commenced their last swelling. I do not approve, however, of the proposed mode of watering—namely, digging little holes, and pouring it in in bucketfuls. I would prefer forking the border, and letting the water percolate through the whole of its width. I do not know the strength of the stable liquid manure. If it is much diluted with rain or other water it may not be over-strong. If it is nothing scarcely but urine and the richest part of other droppings, I should like to give at least five times its bulk of water. I once helped to apply liquid from the cesspools of a stable just as it was taken out, and it did next to kill the Vines outright. It is possible, therefore, to have too much of a good thing. Let me not, however, be mistaken. A little of such strong liquid may be sprinkled over the surface of the border, and especially if rain is apprehended, and do no harm. That is a different thing from soaking the soil with such strong water. If put into holes in pailfuls, and the liquid is as strong as I have seen it, I should expect all the roots near it to be injured or destroyed.

3rd. Temperature and Atmospheric Moisture.—From 45° to 50° is high enough to start with for Vines that are to be forced, and in a month or so that may be raised gradually to 60°. The latter heat should never be exceeded at night, until the buds are all broken and show well. When in bloom the house at night should rise to from 60° to 65°, and in the case of *Muscats*, some would prefer 70° to 75°; but provided the house had a rise of 10° to 15° by sunshine, most Vines will set quite as well if at night the temperature is not much above 65°. Rather than have them much higher at night with fire heat, I would prefer them ranging to 85°, and even 90°, with sun heat, provided the heat from sun was also accompanied with air. For early forcing to get the buds to break regularly, a moist atmosphere is necessary. When the Vines are allowed to break almost naturally, the extreme of care in securing a moist atmosphere is unnecessary, as I have often found that Vines that were scarcely ever syringed, just broke as well and as regularly as those that were syringed regularly, and other means were taken to keep up a moist atmosphere. I should not like to dispense with moistening in early forcing; but in common cases where the Vines are only slightly accelerated, the advantages of ever and anon squirting with the syringe are very problematical. Something of the same kind holds good as to the disputed point of having a dry or a moist atmosphere when the Grapes are setting. I believe that holding the medium will be the best practice. It would not be wise to syringe, or even dew the bunches to any extent under such circumstances, though I have done the latter very gently at times, when the atmosphere was very dry after a bright sun, and thought the young bunches of flowers liked it rather than otherwise. In very dull, cold weather, I would rather reduce the heat, and with it the extra moisture in the atmosphere. In very dry, bright weather, if I did not *dust* the Vines with water, I would certainly throw a little water gently on the walls, stages, and floors of the houses, that the air might supply itself with moisture in proportion to the heat. I do not, therefore, think that in dull weather it would be prudent to keep Vines in bloom in too moist an atmosphere, as the anther-boxes would not open freely from being clogged with moisture. Neither should I like to keep the atmosphere too dry, because in that case I have often found that the parts of fructification are held together in one little knot or bundle, and the anthers did not seem to have the power to spring back and discharge their pollen. For these reasons I prefer the moisture in the atmosphere to be in a medium state, and chiefly to be regulated by the amount of heat to be obtained from the sun; sprinkling floors, &c., in bright days, and letting them be almost dry, and the temperature to decline in dull, cold days. A few hours' bright sun with moderate moisture, will do more to secure a good setting of fruit than a week's firing and steaming.

4th. Raising and Replanting Vines.—From reasons already given I should be inclined in the present case to try another year, and not raise the Vines, or only one or two in the way of experiment. If after renewing the wood and getting rid of the old stem, the same evils should continue, then it would be well to raise and replant one-half of the Vines, and give them a fair portion of new soil, and some hundredweight of crushed bones intermingled with it.

According to circumstances, Vines may be taken up at any time, if extra trouble is no consideration. For instance: I removed the soil from a part of a border of Vines in January and March, and added fresh to the roots that were moved with care; but I should greatly have preferred doing that work in the months of September and October, but I could not get at them then. I have partly disearthed Vines in the end of June, shaded the tops until tops and roots were growing fresh, then removed nearly the whole of the wood and grew fresh wood; that

ripened well, and produced a heavy crop the following May. Here, however, to gain time, there was much extra labour in shading and syringing, so as to prevent a leaf shrivelling or flagging until the reciprocal action between roots and branches was restored. I have said that there do not seem to be as yet thoroughly conclusive reasons in the case of these Vines of "A Beginner" to raise them this season; but if there were reasons, and the crop was so small as to be of no consideration, I should not hesitate to raise them now, taking care to place the roots as raised in mats kept moist, and shading the house with thick sheeting, and syringing frequently and keeping up a moist heat, so as to keep all the leaves healthy until the roots were rooting freely in the new soil. The heat of the summer would soon cause that to take place, and then I should most likely thin out the old wood, and depend on new wood for the next season's crop. It would, however, be madness to attempt this where there was neither the labour power, nor the skill to keep the house shaded, and in an atmosphere saturated with moisture. Where these can be commanded there need be no doubt as to having good, well-ripened wood for the next year.

In general, however, the end of September would be the best time for performing such an operation with the earliest of these houses, as by that time the wood for next season would be pretty well matured, and the fruit be cut, and yet there would be a sufficiency of green leaves and fresh growth on the Vines. That, provided a fair amount of shade were given, would encourage immediate root action into the warm soil before the chilling nights came, and the following season the Vines would break with little abated vigour. All things considered, this would be the most suitable time for practitioners under general circumstances. The shading and care at that time would be a trifle to what it would be in May or June. The next best, and what would involve least trouble, would be to wait until the leaves were getting yellow—say the middle of October. No shading would then be required; and provided the border was covered with dry litter, there would still be enough heat in the soil to encourage fresh root action. The worst time of all would be winter or early spring, if you expected much the following summer.

By lifting the Vines in early summer, the wood formed afterwards will be changed in its character. That will also partly be the case if the roots are raised early in autumn. If raised rather late in autumn, the bearing wood for next year will not be much influenced as to productiveness, though the fruit, most likely, will be saved from shanking and wiring; but the chief benefit will be found in the second year, as respects wood and fruit. If the Vines are lifted in winter and spring, unless great counteracting care is exercised in the way of artificial heat, both wood and fruit will be likely to suffer the first season, and it will be the second before the full benefit appears, and that only, if care is taken to lessen the checks unavoidably given.

Once more, as to *cutting* back the Vines when lifted, that no doubt may exist. What has been said on pruning will equally apply to them. For instance: Raise Vines now; keep as advised every leaf and shoot inside that is green, until the roots are working vigorously afresh. If the Vine is furnished well from top to bottom, I might keep and mature the wood it has, taking off the shading by degrees; but in general it will be preferable, after the roots are acting freely, to cut back the Vines considerably and depend on new growth. Either plan will do, according to circumstances. In lifting in early autumn, you may prune as you like as soon as the leaves get yellow. In lifting later, you may cut the tops before you lift, or after: it matters little, but the first would be best.

And once more. Recollect the roots must not be *dug* up. The work must be commenced at the outside of the border by sinking a deep trench there below the roots, and working the face of the bank down carefully with a pick and fork, so as to save all the roots of any size. These roots should also be kept from a drying air, and kept moist until replanted. Much has been said of draining and forming borders. New soil of a rough loamy nature will be best, and a few bones will be the most lasting manure. Not long ago I noticed a border renewed in the beginning of September, and having a good deal of turf sods, broken up, incorporated with it. These heated so much when blended with bones and lime rubbish, that trial-sticks felt quite warm to the hands in October. Fresh roots were made at once, and the first season showed no signs of the Vines having been moved; but the second season the Vines and crops were magnificent.

R. Fish.

EFFECT OF WINTER ON HERBACEOUS CALCEOLARIAS AND BAY TREES.

A strange thing and one noteworthy is, that while our Bay trees, almost without exception, have been killed by the severity of the winter, some herbaceous Calceolarias, which were turned out of pots and thrown on a border carelessly in the autumn, and never looked at afterwards, are now, to my great surprise, coming into flower. The seed-pan was also put out of doors with one or two plants in it; and though frozen over and over again, still they lived. The greatest cold here was 11°. These plants were in an exposed situation.—Rose.

[The Moth you sent is the *Callimorpha Jacobeæ*, or Pink Underwing. Its caterpillars, coloured black and orange in alternate bands, feed on the common Groundsel. It is very common.]

VARIEGATED HARDY SHRUBS.

Those marked thus * are deciduous; all the rest are evergreen.

Aristotelia Macqui variegata (The striped-leaved Aristotelia). Gardens. Layers or cuttings.

Aucuba Japonica (The Japan Aucuba). Japan. Cuttings.

A. Japonica latimaculata (Broad-blotched Aucuba). Gardens.

**Berberis vulgaris foliis purpureis* (Purple-leaved common Barberry). Gardens. Layers and suckers.

Buxus sempervirens argentea (The silver-variegated Box tree). Britain. Layers and cuttings.

B. sempervirens aurea (The golden-variegated Box tree). Britain.

B. sempervirens marginata (The yellow-edged Box tree). Britain.

Cerasus lauro-cerasus variegatus (The striped-leaved common Laurel). Gardens. Cuttings.

**Corylus avellana purpurea* (The purple-leaved Filbert.) Gardens. Grafts and layers.

**Cratægus oxycantha foliis argenteis* (The silver-striped, sharp-spined Hawthorn). Gardens. Grafts.

**C. oxycantha foliis aureis* (The yellow variegated sharp-spined Hawthorn). Gardens. Grafts.

Daphne cneorum variegatum (The striped Daphne garland flower). Gardens. Layers.

D. Pontica foliis variegatis (The striped Pontic Daphne). Gardens. Layers.

Erica or *Calluna vulgaris variegata* (The variegated-leaved common Heath). Britain. Layers.

Euonymus Japonicus aureum maculatum (The gold-blotched Japan Spindle Tree). Japan. Cuttings.

E. Japonicus purpurea (The purple-leaved Spindle Tree). Japan. Cuttings.

E. Japonicus variegatus (The silver-striped Japan Spindle Tree). Cuttings. All rather tender north of London.

Hedera helix-foliis argenteis (The silver-striped common Ivy). Britain. Cuttings on a north border.

H. helix-foliis aureis (The gold-blotched common Ivy). Britain. Cuttings on a north border. Both climbers. Messrs. Fisher & Holmes of Sheffield have a tree variegated Ivy.

Ilex aquifolium albo-marginatum. (The white-edged prickly-leaved common Holly). Britain. Buds, layers, and cuttings.

I. aquifolium albo-pictum (The white-blotched common Holly). Britain.

I. aquifolium aureum marginatum (The gold-edged common Holly). Britain.

I. aquifolium aureum latimaculata (The broad gold-blotched common Holly). Britain.

I. aquifolium ferox argenteum (The silvery fierce Hedgehog Holly). Britain.

I. aquifolium ferox aureum (The golden fierce Hedgehog Holly). Britain.

I. aquifolium marginatum (The thick-margined Holly). Britain.

I. aquifolium medio-pictum (The middle-painted Holly). Britain.

Juniperus Savina variegata (The striped common Savin). Europe. Layers.

Kalmia angustifolia foliis variegatis (The variegated narrow-leaved Kalmia. N. America. Layers.

**Ligustrum vulgaris variegatum* (The variegated common Privet). Britain. Cuttings.

**Philadelphus coronarius foliis variegatis* (The variegated garland Syringa). S. of Europe. Layers.

Rhododendron hirsutum variegatum (The variegated hairy Rhododendron). Alps of Europe. Layers.

R. Ponticum variegatum (The variegated Pontic Rhododendron). Spain. Layers.
R. Ponticum aureum marginatum (The gold-edged Pontic Rhododendron). Levant. Layers.
Rhamnus Alaternus foliis argenteis (The silver-striped Alaternus). S. of Europe. Cuttings and layers.
R. Alaternus foliis aureis (The gold-edged Alaternus). S. of Europe. Cuttings and layers.
R. Alaternus foliis maculatis (The spotted-leaved Alaternus). S. of Europe. Cuttings and layers.
**Rubus cæsius foliis variegatis* (The variegated grey Bramble). Britain. Layers.
**R. fruticosus foliis variegatis* (The variegated shrubby common Bramble). Britain. Layers.
Salvia officinalis variegata (The striped common Sage). Britain. Cuttings and layers.
**Sambucus nigra foliis argenteis* (The silver-variegated black-fruited Elder). Britain. Cuttings.
**S. nigra foliis luteis* (Yellow-variegated black-fruited Elder).
Taxus baccata foliis variegatis (The variegated Yew). Britain. Grafts and cuttings.
T. baccata foliis variegatis aureis (The golden-variegated Yew). Britain. Cuttings and grafts.
T. baccata foliis variegata elegantissima (The elegant silver-striped Yew). Britain. Cuttings and grafts.
Thuja occidentalis variegata (The variegated-leaved Arbor Vitæ). N. America. Cuttings and layers.
T. aurea (The golden-leaved Thuja). China. Cuttings.
Viburnum tinus lucidum variegatum (The variegated shining-leaved Laurustinus). S. of Europe. Layers and cuttings.
V. strictum variegatum (The variegated erect Laurustinus). S. of Europe. Layers and cuttings,
**V. lantana foliis variegatis* (The striped Wayfaring tree). Britain. Cuttings and layers.

It appears from the above list that there are in the nurseries of Great Britain upwards of fifty varieties of shrubs with striped, blotched, and self-coloured foliage. By far the greater number are evergreen, there being only twelve that are deciduous. Some few (the Alaternus, for instance), are rather tender; but if such are planted in a dry soil, slightly elevated in position, and sheltered in very severe frosts, they will not suffer much.

The question arises, How can we display to the best advantage this mass of beautiful-coloured foliage of hardy shrubs? As they attain various altitudes, many approaching that of trees (as, for instance, the varieties of Buxus, or Box, and Ilex, or Holly), whilst others (such as the Daphne and Savin), almost lie flat on the ground, an arrangement might be made by which the whole might be seen almost at one glance. This arrangement, of course, implies that there is space in the place where a VARIEGATED SHRUBBERY could be formed. There are numerous noblemen's and gentlemen's seats in Great Britain where such a shrubbery could be adopted with ease, and with the happiest effect. There would be a meaning and a design in such an arrangement instead of the hodge-pode, haphazard, meaningless mode of the mixed shrubberies now in existence. In some public institution, like the Crystal Palace at Sydenham, or in new forming public parks, such a place as a variegated garden might be laid out and planted as an example. And in order that the designer of such a place might be encouraged to adopt this and the other new arrangements of shrubs detailed by me in former numbers of THE COTTAGE GARDENER, I would recommend nurserymen to send specimens of every kind of variegated tree or shrub free of charge to the first landscape or private gardener that intimates his intention to carry these new arrangements out into practice. They may rely upon it that such a liberality would not be wasted. The example would be followed largely; and hence a demand for similar specimens would be created, and the nurseryman's business increased accordingly.

Supposing such an idea adopted, I would arrange these variegated shrubs in something like the following order:—The border should be wide enough to contain five rows: thirty-two feet in width would be sufficient, allowing the back row twelve feet, the next eight feet, the next six feet, the next four feet, and the front row two feet. The upright-growing species might have less space in the row, in order to allow room for such as are of a more spreading habit.

Back row to consist of tree Box, tall-growing Hollies, Thorns, and Arbor Vitæ.

Next, lower-growing Hollies, Box, purple, Hazel, and striped Elder.

Next, Aucuba, striped Laurel, Aristotelia, tall Rhododendron, striped Privet.

Next, Laurustinus, striped Yews, Euonymus, dwarf Hollies, ditto Rhododendron.

Front row, Daphne, Syringa, Savin, Kalmia, Erica, *Thuja aurea*. T. APPLEBY.

VEGETATION IN GREECE.

BY DR. LANDERER.

FUNGI require a humid atmosphere, and therefore love forest shade and dark and humid places. Such are scarce in Greece, and consequently the fungi; nor will the Greek eat what offers in the way of eatable fungus, as he is prejudiced against their use. Of such as are found I mention particularly *Agaricus campestris*, which appears on the roots of the Mulberry, and so thickly, that hundreds of them are but the growth of a couple of days. *Boletus ignitarius* is formed on fruit trees. This sponge is prepared in Macedonia, with *Melilotus officinalis* and other aromatic plants, and sent to market at Constantinople. There the *Tsimbuk oglan*—that is, the "pipe-boy"—puts it on the pipe of the Effendim.

Hesperian Fruit.—Hercules, says the mythology, brought the golden fruit of the Hesperides to Greece. Southern Greece and the islands of the Archipelagus produce them freely. They grow everywhere, and, irrigation excepted, no further labour is necessary but to gather the ripe fruit. The Greeks like best of them the Portugal *Citrus aurantium*. It is a custom with them to give such an Orange to a visitor who is about to leave; and if the visitor any way likes his host, is satisfied with his reception, &c., he will take care to carry the golden fruit in his hand out of the house, and not to pocket it sooner.

In good years, from forty to fifty millions of Oranges and Lemons are exported to Constantinople and the ports of Asia Minor. As many are consumed at home. The Greeks stew the unripe fruit, and make *gluco* of it—sherbet. The peel or skin is thrown away, and the little that is wanted for medical purposes is actually imported into the country.

The bitter Pomerance, *Neraulia nikra*, *Citrus Bigardia*, is found on the Continent and the isles, but nothing is made of it

C. Bergamia and *Lumma*, the sweet Lemon, grow on Naxos.

The commonest kind is the Lemon, *Citrus Limonium*. The body of the dead gets a Lemon in its hand, and the attendants of a funeral also carry a Lemon—a custom prevailing in nearly every country where Lemons grow.

The Jews make a specific against cholera by mixing the tincture Mastilis with the ethereal oil and the juice of the skin of *Citrus decumana*. This Lemon, which grows at Naxos, also makes a nice preserve. The Jews take a particular interest in this Lemon, because they say it is the Apple of Paradise—that but-too-famous Apple—perhaps from the indentations of the skin, which almost look like bites.

Magnolia grandiflora, the finest tree of the American forests, an evergreen from 60 to 70 feet high, is also found on the Ionian Islands, especially Corfu, and is an ornament of the gardens of rich English people there. The flowers yield a fat, odoriferous oil, which brings a high price, and is said to be a preventive against the falling out of the hair. These pomatums and oils can be made by an infusion of the oil of Almonds, or of a scentless fat, on the fresh Magnolia flowers, and they are truly delightful.

Holcus Saccharatus.—The English Government has made experiments on a large scale with this plant on the Ionian Islands. Sugar and spirits of wine, especially the latter, are said to be produced from it. These trials promised success, and are continued.

Climbing plants abound in the forests of Greece. The commonest is *Bignonia radicans*, Trumpet-flower; further *Paullinia curura*, *Urceola elastica*, *Pothos funifera*. These and the Ivies, which often assume a tree-like habit, not only cover the trees, but, after having climbed high up, descend as deeply, take new root, ascend again, run from tree to tree, and form impenetrable walls, which the axe alone can clear.—(*From the Botanische Notizen aus Griechenland.*)

TO CORRESPONDENTS.

GREEN FLY ON MELONS (*An Irish Subscriber*).—Fumigate with tobacco smoke, and then syringe the plants. Repeat this treatment at intervals of two days until no more aphides appear.

THRIPS ON MELONS (*A Young Beginner*).—The inroads of red spider

and thrips prove beyond any doubt that you have kept the air in the house too dry. You say you have vanquished the red spider with sulphur; but that the thrips is your vanquisher. Try repeated dustings with Scotch snuff, and keep the air in the house moister, and yet well ventilated.

FRUIT TREE LATERALS (*A Subscriber*).—You have done quite right in cutting back the laterals of your Cherries, Plums, and Pears. Keep a watch over them during the growing season; and whenever you see them making what are likely to become vigorous shoots, pinch them back when they have made three leaves. If your Vines in pots are bearing fruit, do not repot them now; and whether they are or not, do not stop the lateral shoots. Wire two feet and a half to three feet, will keep out rabbits.

GARDEN PLAN (*Novice*).—All right except the large centre bed, which is of Scarlet Geraniums, and cuts your garden into two parts, in the eyes of a stranger looking out from the windows. It is not much out of place for you and your household, as you know the extent of your ground; but visitors will run away with the idea that your garden is only one half the size it is, all owing to the strongest colour standing in the centre, and preventing the eye from measuring beyond. The strongest colours, as scarlet and yellow, ought invariably to be at the extremes, from the centre of a regular figure, and your garden is a regular and very good design, and what you want in the centre circle is some variegated plants, as *Flower of the Day* Geranium, with any edging you please—of *Tom Thumb* Geranium, if you like; but generally a blazing edging is preferred for such a bed in such a place.

NAME OF SALAD LEAF (*W. X. W.*).—This plant was at one time much grown in gardens for culinary purposes. It was used in soups, sauces, and in salads. It is commonly called the *French Sorrel*, or *Rumex scutatus*. It is seldom seen now, as the broader-leaved varieties are more commonly grown.

NAMES OF PLANTS (*A Subscriber*).—The plant you found by a pond in South Wales, is the Water Trefoil, or Trefoil Buckbean, *Menyanthes trifoliata*. It is one of the most beautiful of flowers, and deserves a place among the Nymphæas, Hottonias, and other exotic aquatics in our gardens. Poetry is not too eulogistic when it says—

"Oft where the stream meandering glides,
Our beauteous *Menyanthes* hides
Her clustering, fringed flowers;
Nor, 'mid the gardener's sheltering care,
Of fam'd exotics rich and rare,
Purple or roseate, dark or fair,
A plant more lovely towers."

(*Henry Holloway*).—The plant from the chalk pit is the *Ophrys anthropophora*, or Green Man Orchis.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

JUNE 6th, 7th, and 8th. BATH AND WEST OF ENGLAND. At Dorchester. *Sec.*, J. Kingsbury, Esq., Hammet Street, Taunton. Entries close May 7.

JUNE 12th. ESSEX (Saffron Walden). *Sec.*, Mr. Robert Emson, Slough House, Halstead, Essex. Entries close June 1st.

JUNE 20th. THORNE. *Sec.*, Mr. Joseph Richardson.

JUNE 29th. DRIFFIELD. *Sec.*, Mr. R. Davison. Entries close June 23rd.

JUNE 29th and 30th, JULY 2nd and 3rd. SHEFFIELD. *Chairman*, Mr. Wilson Overend, Sheffield. Entries close June 14th.

JULY 18th and 19th. MERTHYR TYDVIL. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

JULY 19th. PRESCOT. *Sec.*, Mr. J. Beesley. Entries close July 7.

AUGUST 22nd and 23rd. SETTLE (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

AUGUST 25th, 27th, 28th, and 29th. CRYSTAL PALACE. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

SEPTEMBER 19th, 20th, and 21st. PORTSMOUTH. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

SEPTEMBER 25th. BRIDGNORTH. *Sec.*, Mr. Richard Taylor, Bridgnorth.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

THE INFLUENCE OF A MILD SEASON.

THE earth, released from the bands of frost, and its surface refreshed with warm showers, is at last teeming with fruitfulness. She is clothing herself with verdure. This affords much food for poultry, not only in itself, but by the harbour it affords for insects. We know with what delight we find on some fine morning, that the wretched, cutting, unkind, easterly wind has disappeared during the night to make way for a soft and genial breeze from the west. We long to see the parched earth fed with rain, and that dust which has been our bane for weeks laid by the falling moisture; and the conviction at last grows upon us that it is warmer. Costume is changed; the enemy has disappeared; there is, then, no reason to shut him out.

It is the same with our fowls. They feel the change as much as we do. A few days since, and when they ventured out, their feathers were blown inside out; and when they sought shelter from the wind, they were carried before it with that resisting step that always reminds us of a man restraining a heavily laden truck down hill. He does all he can do; till at last, finding himself overpowered, he fairly runs with, rather than struggle against, his load. So the fowls during the east wind, unable to stand about or seek their food, blinded with dust, perishing with piercing cold, are obliged to yield, and they run for shelter. How changed is it now! How deliberately they pace along, scanning every new sprout or root of verdure! How soft, cool, and refreshing is the earth to their feet! How pleasant the shelter of the young foliage! A Sybarite might envy that hen and her chickens. Look at her. There is a shrubbery rising upward till it reaches a wall; it is divided from the gravel path of a kitchen garden by a narrow band of grass. The sun is shining on it, and has been doing so long enough to dry the surface. The hen has settled herself down, has scratched her hole, and now lies on one side. She has partly buried herself in dust; and while opening her feathers to admit the warmth of the sun, she crops from time to time any little tempting piece of grass. She is also on the look out for anything that may turn up in the way of insect life: she is in this respect a feathered Micawber; and hardly has it appeared before it is devoured. She is now thriving, and will forget all the trials of the long winter. And her chickens—see how they enjoy themselves—how they chase every fly and every moth! And they, too, feel the influence of the sun. They mimic their mother; and, raising their little wings, they expose their bodies to the sun's heat. Now they grow and thrive. How different is the feeling of their owner as he looks at them to that of a month since! Then he was himself cold, although wrapped up. He wondered not his stock felt the same. He asked himself whether he should succeed in rearing them spite of all his care. They did not grow. They had known none but a parched barren earth, and they sought nothing from its surface. They looked to feeding for food. Now all is altered.

We feel it our duty to hang advice, or admonition, on every change that takes place. For some time we have constantly urged on our readers good and stimulating food, to counteract the effects of inclement and trying weather. We now say, Hold your hands, Nature will do a great deal, and you may give up your stimulants save for very young chickens. Move your hens out on grass, but do not let the chickens run where it is very high. If they are overtaken by heavy rain, or storm, in high grass, it frequently causes death from cold or cramp, as they are unable to reach the hen. Whenever or wherever grass has been cut, there is a good run for chickens, it is fresh earth and cool. You need not feed as often as you have hitherto done; and be guided now as before by the wants of your chickens, leaving off to feed when they cease to run for food. Scatter the hens with chickens as much as you can; let them, like yourself, rejoice in the glorious change, and prove, like the teeming earth, that things are not so irretrievably ruined as our forebodings dreaded.

USE OF UNFERTILE EGGS.

I HAVE seen a letter from G. Montagu, in THE COTTAGE GARDENER of the 8th of May. I have, also, for a long time taken out the bad eggs at the end of the first week; but I never heard of the *bad* eggs being *good* for eating. However, I have taken out the unfertile eggs from two hens since, at the end of their first week, and boiled them for the chickens, as I could not relish them myself; but I have found no difference in them from new-laid eggs. I am much indebted to G. Montagu for his suggestion, and feel confident it will prove generally useful.

While on the subject of eggs, let me say, that as far as the air-circle is concerned, it is to be found in *every* egg. I have a hen now under a coop, with chickens, which lays, and her eggs have all air-circles, although separated from the male bird more than two months. I have found that while the egg is yet warm from the hen there is no air-circle, but when it cools it appears. I selected a brood of eggs with the air-circle at the side, and they are all pullets but one, but I believe it is by chance.—W. R. E.

AGE AT WHICH CHICKENS MAY BE TAKEN FROM THEIR MOTHER.

A CORRESPONDENT, "W.," states that a hen of his "kept her brood for four months!" Last year I made trial of taking chickens away from their mothers when only a fortnight old, during the summer and autumn, without supplying them with a substitute of any kind. The experiment I consider was quite

successful, for I did not lose a single chicken, and they seemed to work all the harder for having to depend upon themselves. No chickens could thrive better. The hens laid again in ten days or a fortnight. Neither mothers nor chicks seemed to care much for their mutual loss.—G. Montagu.

NATURAL HISTORY.

ORTOLANS AND RED GROUSE.

Many curious facts may be noted in connection with certain birds. Let us, for instance, take the Ortolan. This was formerly better known in England than it was a few years since. Goldsmith, speaking of Beau Tibbs says, "He would still have an Ortolan, though he borrowed the guinea that paid for it." Previous to 1848, they were worth from a guinea to thirty shillings each; but since then they have gradually decreased in price, till we do not despair of seeing them, like pine-apples and ices, become food for the million.

This decrease in price, and the regular consumption of them at the tables of the wealthy, were caused by the French Revolution of 1848. During the short days of the Republic, it was dangerous to be an aristocrat. Titles were abolished, and by order of Albert (workman), Flotte (cook), and their colleagues, equality reigned in France. It was a noble wish of Henry IV., that all Frenchmen should have a "*poule au pot*" every Sunday, but it would pass the bounds of romance to wish that the same should be said of a roast of Ortolans. But not only would their numbers be insufficient, and their price "prohibitory," but to eat Ortolans would be a sign of luxury, that might be considered treasonous under a republic. We have heard that a clean shirt and polished boots sometimes got their owners into trouble. The man then who annually supplied Paris and the Court, found his avocation gone, and brought his birds to England. They laid the foundation of a considerable trade that is now carried on in them.

It is curious, that although they abound in France, Belgium and Holland, they never visit this country. As among the numbers that are brought over alive some escape, and as a bird is supposed to rank among British ones as soon as two or three have been taken, we fully expect to have it claimed as one of ours in some forthcoming work. It is remarkable for the excessive fatness it attains, exceeding in that particular all other birds.

The fact of the Ortolan not visiting England while it comes annually so near to it, is not more extraordinary than the fact of Red Grouse being found only in the British Isles. It is true one is migratory while the other is not; but that does not interfere with the singularity of the circumstances, that one should stay so perseveringly here, and the other should always stop a few miles short.

ANIMALS COUNTERFEITING LAMENESS AND DEATH.

Those who have studied the natural habits of animals will know that some of them have the remarkable power of pretending lameness, and even death, when danger is apprehended. There are many such stories told of the Fox, some of which may be exaggerated; but his cunning is proverbial, and may have given rise to the saying of a "Fox's sleep," when one is considered to be awake, though his eyes are closed. However, there can be no question that Partridges pretend lameness on being grievously wounded, to draw off attention from their helpless brood. Nor can we doubt that the many gyrations of Lapwings or Peewits while flying, or running on the ground, everywhere except near their nests or young, are intended to decoy egg-hunters away from them. But I have known one who understood their manœuvres so well, that he would walk up to their nests almost as easily as if he had previously known them. The art, however, can only be acquired by much experience of the tricks and wailing cry of Lapwings during the breeding season. In general they lay only four eggs in a mere hollow in the ground, sometimes lined with withered grass; but they will lay again in new nests when they are robbed of their eggs. These fetch a good price; but from drainage and the cultivation of waste lands, Peewits, like some others of our British birds, which inhabit the moors and uplands, have become less plentiful of late years. Their young leave the nests shortly after they are hatched, and are very nimble on their legs. Boys know this, and also the trick of Tomtits pretending to be dead in their hands, and suddenly flying off when opened. I have either read or heard of similar tricks practised by Wild Ducks, and have seen something of the kind in wounded Herons. But the most remarkable trick of that sort was once played off upon myself by a Stork which a friend sent me. I gave Longlegs his liberty, but the next morning he was gone, and a boy reported he saw "a comical fowl" near the sawpit, in which I observed my Stork lying apparently dead. I threw him out, and he lay motionless for a time, and then suddenly "took to his heels;" but after we got better acquainted, the Stork gave up his tricks, and walked about as freely as if he had been in Holland.

This shamming death, however, appears more in some kinds of insects and their larvæ. Children often amuse themselves by turning Beetles on their backs, where they remain a considerable time motionless. For instance: The pretty red "Ladybird." This white and black-spotted early visitor in spring, on the first glimpse of sunshine, seems to do no injury to plants, unlike others of its family, and Woodlice. These with some kinds of Moths, their larvæ, and, perhaps, many other kinds of insects have all their different ways of feigning death to escape danger Toads, also, are very remarkable for the same instinct, and after being wounded and crushed have been known to lie motionless a long time as if dead, till their boy-tormentors had left them as "settled," and then slowly gather up their legs and move away. —J. Wighton.

COATING HIVES WITH ROMAN CEMENT.

In reply to a correspondent whose name is not given, and who wishes for information from any one who has tried the above as a protection for hives, I may state that I have adopted the plan in one instance, many years since. I do not like it, as it makes a heavy hive having anything but an ornamental appearance. Besides which it still requires protection, or covering, from the sun.

It may have been accidental with me, but certainly the hive did not thrive well after it was coated with the cement, though it was a fine strong stock before.

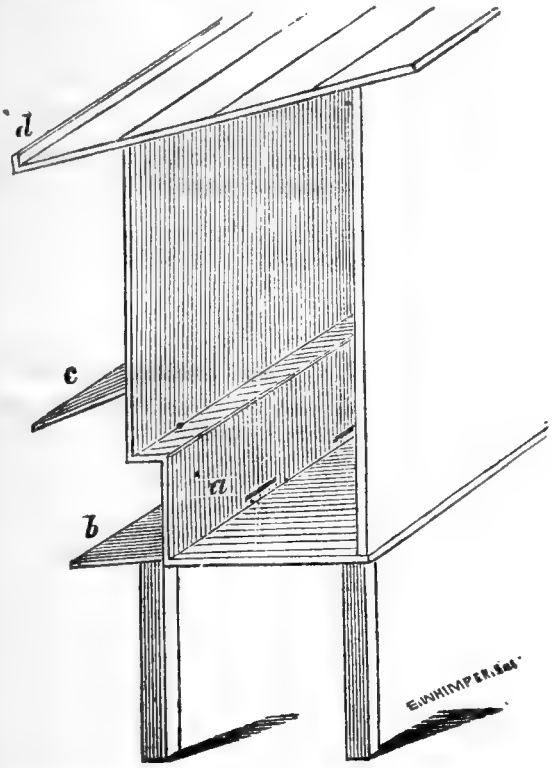
Nor do I like paint for straw hives much better. I can see no advantage in it, as they must be quite as much protected from sun and rain as the unpainted ones. With moveable wooden cases that easily slip down over the hive and loose roofs, my straw hives will, after many years' use, look almost as clean as when new. If economy be an object, a first-rate case may be made of a strip of thick, stiff old floor-cloth standing on edge, leaving an inch space all round. A roof of the same may be stitched to the ring. Some apertures for ventilation must be made where not conspicuous. But when hives are kept for swarming purposes only, there is nothing to my mind, either as regards appearance or usefulness, to equal the well-made straw packle, which, however, must never be allowed to grow old and musty. It should be made thicker than is usually the case.—S. B. Fox, *Exeter*.

APIARIAN NOTES.—No. VI.

Bee-houses and Open Stands.—It is about fifteen years since I first established an apiary in my back garden in this city (Exeter), and from that time to this, both in England and Ireland, I have always had bees in a more or less prosperous condition. Having tried numberless kinds of hives and boxes, my success during this long period has been very varied; and the longer I keep bees, the more am I convinced that it is folly to lay down any decided rules as to what kind of hives must be kept; what material, wood or straw, must be used in their manufacture; or whether they must be protected in closed bee-houses, under open sheds, or on separate stands. All these plans at one time or another have been attended with success, and again have failed. Sometimes my bees have answered admirably in a close shed; then a period of disheartening change has taken place, doubtless wrongly attributed to the house, which in consequence was discarded. In course of time it has been again tried, and good results have followed its adoption. I do not think the system had much to do with the cause of failure. We all know that an apiary may be in a fine state of prosperity one season, but in the next will disappoint all the expectations of the owner, and this will occur with any kind of hive, and in any situation.

I think "A Young Apiarian," who wrote a few weeks ago, was much too hasty in discarding his bee-house, which, from the description, would appear, with a little exception, to have been

one very likely to conduce to the comfort and prosperity of the bees. The double row of rails for the support of hives one above the other was very objectionable; also the opening of two and a half inches the whole length of the house for the entrances of the hives was an error. Each hive should have its separate aperture for communication with the open air, and should be so blocked while standing an inch away from the front that not a bee should be able to find ingress to the interior of the bee-house. The plan I have adopted, and which is the best I have seen for this purpose, is to make the house with a recess eight inches in height and two and a half deep, the whole length of the front level with the *close* boarded floor. A section of the interior will be best understood.



In the above rough sketch *a* is the block formed by the recess in the front. This is about eight inches high, so that the projecting covers of the boxes will pass above it, allowing the hives to stand quite close up to the block so made. The floor-boards on which the hives stand should be one inch and a half thick, and the entrances cut in the substance of the wood; consequently the apertures cut in the block must not be quite level with the inside flooring of the house, but made so as to come exactly opposite those in the loose floor-boards. The alighting-board *b* is about eight inches wide, a little sloped to the front, and ending flush with the lower part of the apertures. Between each entrance there is an upright partition the entire width of the alighting-board, which tends more completely to isolate each colony. A projecting shade, *c*, about fifteen inches above the alighting-board, and at least one foot wide, is very useful. The roof should project beyond both shade and alighting-board; and if made of wood ought to have a ledge, *d*, to act as a gutter, to prevent the bees from being annoyed by the droppings of rain. Several apertures should be made just under the roof, both at the ends and sides, covered with perforated zinc for ventilation. I prefer thatch to wood for the roof; my own house was thickly thatched on the top, and a thinner covering of straw down the front as far as the shades; and the ends were similarly protected. With good ventilation such a house is admirably adapted for bees; and the owner may thus prevent his glass hives, or glass supers, from being disturbed by uninvited prying eyes, as he may secure them under a good lock and key, keeping the latter in his own pocket. From hives kept in a house like the above I obtained very good and early supplies of honey.

But notwithstanding what I have said in favour of a closed bee-house, yet my greatest success with bees has been with hives standing on separate pedestals, and protected by their own cases. I must, however, state that it is of late years that I have chiefly adopted this plan, and I think the successful results may be attributed as much to good seasons and better knowledge of how to take advantage of such as to any particular superiority there may be in the "separate system." The greatest drawback to separate stands is, that however ornamentally got up, they require much shading in hot weather; or if not thus protected the bees suffer considerably from the heat, and the proprietor wonders at the small amount of honey stored in his supers. Protection from the sun's intense heat must be afforded, however unsightly the means applied. I am far more careful in affording shade and covering, beyond the usual outer casings of my hives, against summer heat than against summer rains.

The best and the most ornamental erection for obviating these inconveniences is an open bee-shed—that is, one made of such a length as to allow the number of hives kept to be placed on separate pedestals with at least eighteen inches between each hive. The roof only is water-tight; the sides and front may be of trellis work, with a few choice climbers growing over the whole. It is the best plan possible for the inspection of their labours, as bees seldom come much behind to annoy the observer. At the same time it makes a most pleasant arbour for passing a spare hour with a book. It may, according to the taste and means of the apiarian, be made an extremely ornamental adjunct to the garden. It is advisable not to have the trellis extending entirely in front of the bees. An arched opening, larger than the hive, should be left for the bees to fly through. An objection is raised by some against these open bee-houses on the ground of their being often infested with spiders; but I have never been so much annoyed by these pests by this plan as I often am even where my hives have their separate stands and cases.

The object of the foregoing remarks is to show that there is no decided objection to be made against either of these systems of bee-management. I think "A Young Apiarian" should not have doomed his house to destruction chiefly, as it appears to me, from the prejudices of men who are of a class notoriously slow to adopt any change from the customs of their grandfathers.——S. B. Fox, *Exeter.*

STEWARTON OCTAGON AND BAR-HIVES.

Having recently purchased a copy of "Taylor's Bee-keepers' Manual," fifth edition, on perusing which I was not a little surprised to find that in this, the most concise and thoroughly practical work we have on the bee, no notice whatever of decidedly the most complete and useful hive yet introduced—viz., the Stewarton. That any particular system should be judged by its results is but fair; and any one visiting, during the season, some of the honey establishments of Glasgow, must be struck by the groaning shelves and counters of octagons, all of singular purity; and being told that nearly if not the whole is the produce of one county—Ayrshire, is hurried to the conclusion that there bee-keeping has attained the acme of perfection—that this county, so justly celebrated for its dairy stock, must be quite a second Canaan, or land literally flowing with milk and honey.

Some years ago, I was treading what Mr. Taylor styles in his preface "the path (usually a rough and uncertain one) of the apiarian novice," and I can look back with pleasure on the day I first saw these hives and heard their management explained, as one on which I made a stride along the road; discarding for ever from my apiary the clumsy crown-boards and tops, with their central holes and pear-shaped openings, for the ingenious bar and slide of the Stewarton. It is to be regretted that this author should disfigure his handsome volume with sketches of hives at variance with one of the first principles of the depriving system, and one of the main elements in the success of the Stewarton—that bees must be admitted to the supers only from the sides, and never through the centre in any description of hive employed, for the following obvious reasons:—The seat of breeding is the centre, where the heat is chiefly concentrated; consequently, on removing the cover of the central hole the heat is weakened where most required, to be dissipated, where it is worse than useless, in the super above, discolouring the comb. Besides, the queen, usually perambulating the central combs, is much more likely to find her way into the super through a central opening to deposit her eggs. Also, by using side-openings the two classes of the hive are more naturally thrown together; the honey-gatherers of the side-combs have free access with their loads up into the super, without being obliged to push their way through the crowd of nurses and pollen-collectors of the centre.

The Stewarton octagon-hive, being now so much in general use, does not require to be described to your readers; but having recently procured a set of the Stewarton bar-hives advertised in

The Cottage Gardener, some description of them may not come amiss. The hive consists of three boxes about thirteen inches and a half square, the lower six inches deep, and the super four. Each box fitted with seven moveable bars (a spare set accompanying each) and slides. The bars of the central and super box have frames attached to each; so that a comb containing either honey or brood can be made available at any time without disturbing the rest of the hive. A window front and back, with a sliding shutter. The bars are toothed for the better adhesion of the comb, and the sides all round to facilitate the ascent of the heavily laden worker. As in the octagon, the workmanship is superior, every joint being dovetailed, and the price moderate; the best proof of which is, I have never yet fallen in with a tradesman who could supply me on the Stewarton terms. This can be accounted for by the large number these turned out. These bar-hives are doubtless in advance of the octagon for the scientific apiarian and for the speedy increase of a new species, such as the Ligurians; but for rapid honey-gathering I would still give a preference to the octagon. The only fault I have ever heard found with these hives is a difficulty to work the slides when glued up with propolis; but this can be guarded against by running a plane over the lower side of the slide, and rounding the sharp edge so as to leave them very easy at the outset. I intend to send you shortly sketches of other hives used by—A Renfrewshire Bee-keeper.

BARS AND GUIDE-COMBS.

On looking over a portion of some communications, through a series of years, from the late Dr. Bevan, on the subject chiefly of matters connected with the apiary, I am induced to send you an extract from one, dated 26th of August, 1851, relative to bars as adjuncts in hives. Your pages have recently contained remarks as to the difficulty that exists in compelling the bees to adhere to the bars as guides, in placing their combs in straight lines. Dr. Bevan experienced this uncertainty, but in part overcame it by preserving for future use such bars as had been worked correctly. But he shall speak for himself, and any hint coming from such a source is worthy of attention:—

"Some years ago, when short of guide-combs, I was induced to have recourse to simply waxing my bee-bars, and to the best of my recollection it succeeded. But having ever since had a fair supply of guide-combs, I have not tried it again. But I constantly make use of *old bars*, where the direction they have taken has proved quite true, not paring them down closely; so that I leave a whole line of foundation, and believe I thereby save my bees trouble in manipulating propolis. As to the use of guide-combs being an uncertain affair, I experienced this till I fortified the adhesions by a union of resin or Burgundy pitch with the wax, prior to applying the combs."—An Old Apiarian.

LIGURIAN QUEEN BEES.

Would "A Devonshire Bee-keeper" be kind enough to say what number of queen bees have been received from M. Hermann by himself and friends, stating at the same time how many now survive, and how many turned out hybrids or otherwise?—A Lancashire Bee-keeper.

[The following list gives the particulars of all bees received by me from M. Hermann nearly in the order in which they came to hand. It will be perceived that five queens now survive, of which two are pure bred, and two are hybrids; whilst as to the fifth (Mr. Tegetmeier's) I am unable to speak with certainty.

*1 Hybrid queen.
1 Dead.
1 Not fertilised—since dead (Mr. Fox's).
1 Common black queen.
*1 Hybrid.
1 "Whole hive" of 10,000 bees, without a queen, and therefore valueless.
1 Dead.
2 Sent to Mr. Tegetmeier—one since dead.
*2 Pure Ligurian queens.

11

Like "An Old Friend of the Black Bee" I expected "rocks a-head," but having taken careful soundings I honestly confess that I did not anticipate the foundering of my two leading and best-found ships in mid-channel. Having hastily bespoken a warm berth for the defaulting contractor, I have set myself to raise and refit my sunken craft, and hope ere long to pursue my voyage without more material damage than loss of time.

To drop metaphor, I may state that I have every reason to hope that my two hybrid stocks will soon be furnished with pure-bred queens; and as Ligurian drones are now numerous, I am proceeding as fast as possible with my task of queen-rearing. I saw my first artificial queen on the 26th ult. She is a very fine one, quite as large and yellow as M. Hermann's best, and affords the most complete contradiction to his assertion that "Italish wax (*rayons*)" is necessary to the rearing of Italian queens.

It must, of course, be apparent that lost time cannot be regained; and it is, therefore, far from impossible that many may be disappointed in their expectation of receiving Ligurian queens during the present year. I can, therefore, only state that whilst I will do my best to supply the demand, I shall most readily erase from my list all who may be disposed to try their fortune elsewhere.

I have to thank "Investigator" for his hint regarding queen-rearing in autumn, which will not be lost sight of by—A Devonshire Bee-keeper.]

* Those marked with an asterisk are the four I relied upon for queen-rearing.

HIVES COATED WITH ROMAN CEMENT.

For the information of your correspondent, I may mention that, like him, I saw cement recommended, and two years ago gave it a trial on a couple of wooden flat-topped straw hives. I mixed it with the usual proportion of fine sand, and with water brought it into good working order, then applied it to the hives sufficiently thick to cover the straw bands, and no more, smoothed it off with a small trowel. They had a good appearance when dry, and I considered quite impregnable to the attacks of mice or moths from without. After peopling them, I was disappointed to find moisture invariably on the back window; and some of the combs subsequently falling, I came to the conclusion that cement, from its nature, is apt to impede the due ventilation of a hive. I, therefore, the following spring picked it all off. I should, however, be glad to hear of the better success of this, or any of your other correspondents, than what fell to the lot of—A Renfrewshire Bee-keeper.

OUR LETTER BOX.

Hens Eating their Eggs (*L. C. P.*).—We have nothing new upon this subject since Mr. Hewitt showed how he cured his Pheasants and hens of this habit. See our No. 601, published April 3rd of the present year.

Sex of Chickens (*H. I. J.*).—It is quite possible to tell their sex at the age of two months. They are sold occasionally at the London bird-shops, but we should not buy any there if we wished to be sure of a pure and good strain.

Beverley Poultry Show.—We are informed that there is an error in our prize list of this Show, so far as regards "Class J.," in which a pair of white Trumpeters belonging to Mr. F. Mewburn, jun., carried off the first prize, and that in "Classes G. and the special prizes for Fantails, Jacobins, and Trumpeters," we have spelt his name incorrectly.

Pigeons for Table Use (*A. Cad*).—Pigeons are fit for the table at from four to five weeks old—that is to say, when as large as they can be before they leave the nest. When they begin to fly they at first lose flesh; but when they are well able to feed themselves, they become plump again, from which time the older they are the harder they become. I am not aware of any means used to fatten them, except liberal feeding. The Romans, I believe, fattened young Ring Doves on beans steeped in milk.—B. P. Brent.

Ligurian Queens (*A Cheshire Bee-keeper*).—Write to T. Woodbury, Esq., Mount Radford, Exeter.

LONDON MARKETS.—June 4.

POULTRY.

The supply of poultry increases, and there is a good demand.

	Each—s. d.		s. d.		Each—s. d.		s. d.
Large Fowls	7 0	to	7 6	Turkeys	0 0	to	0 0
Smaller Fowls	4 6	,,	5 6	Guinea Fowls	3 0	,,	3 6
Chickens	3 6	,,	4 6	Pigeons	0 8	,,	0 9
Geese	0 0	,,	0 0	Hares	0 0	,,	0 0
Goslings	5 6	,,	6 0	Leverets	3 6	,,	4 0
Ducks	0 0	,,	0 0	Rabbits	1 4	,,	1 5
Ducklings	3 6	,,	4 0	Wild ditto	0 8	,,	0 9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JUNE 12—18, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
12	Tu	Serapias longifolia.	29.854—29.735	74—50	S.W.	.57	44 af 3	15 af 8	8 0	23	0 27	164
13	W	Iris fœtida.	29.912—29.838	75—44	S.W.	—	44 3	15 8	21 0	24	0 15	165
14	Th	Nardus stricta.	29.946—29.911	67—42	N.E.	—	44 3	16 8	36 0	25	0 2	166
15	F	Scabiosas, three species.	29.932—29.811	73—42	N.W.	—	44 3	17 8	52 0	26	0bef.11	167
16	S	Galiums, many.	29.896—29.831	72—41	N.E.	—	44 3	17 8	15 1	27	0 24	168
17	Sun	2 Sunday after Trinity.	30.011—29.988	71—41	W.	—	44 3	17 8	45 1	28	0 37	169
18	M	Littorella lacustris.	30.136—30.034	76—53	N.	—	44 3	18 8	27 2	29	0 50	170

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 72.4° and 49.4° respectively. The greatest heat, 97°, occurred on the 16th, in 1858; and the lowest cold, 30°, on the 15th, in 1850. During the period 122 days were fine, and on 109 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Beans, make another sowing. Top the most forward crop, if not yet done. *Cabbage*, sow a little seed of any of the small sorts, for autumn produce. *Cauliflowers*, plant out some from the first sowing in the open ground. *Cucumbers*, peg down the plants on the ridges as they advance in growth. When they extend to the sides set the hand-glass on three bricks placed edgeways, or on crotched sticks. Water, when necessary, to be given early in the day. *Onions*, thin out the beds, or rows; the thinnings, if required, to be planted, and to be watered, if the weather is dry, until they take fresh root-hold. *Peas*, make the last sowing of Knight's Dwarf Marrow, which is an excellent sort, but is longer in coming into bearing than many others. *Savoys*, plant out some of the early sown. *Tomatoes*, the shoots to be nailed and stopped as they advance in growth; to be mulched with short litter, and to be occasionally watered, as they are generally planted against walls or fences, where they receive but very little benefit from passing showers.

FLOWER GARDEN.

Look over the plants that have been lately bedded out, and close the soil around their stems. Keep the surface of the soil loose. Attend to pegging down and tying, and fill up all vacancies. Part Polyanthuses, choosing for them a cool and shady situation sheltered from north and east winds. Plant out Salvias, Ten-week Stocks, Asters, Campanulas, Indian Pinks, French Marigolds, &c. Mulch Dahlias with rotten dung, and supply them with plenty of water in dry weather. The different kinds of climbing Roses to be carefully tied, or nailed, to prevent them from being injured by the wind. Mow grass lawns regularly during this growing weather. Clip edgings, and endeavour to keep the whole in neat order.

FRUIT GARDEN.

Continue all disbudding, and the stopping of gross shoots and robbers of all sorts when five or six inches long through the whole of the growing season. No mode of planting, winter pruning, or of training, will be of much use unless the regulation of the season's growth is attended to in due time. The *mulching* of fruit trees is also of importance during the heats of summer: it is easily accomplished, and when properly done by no means unsightly. Pinch the points of the young shoots of *Fig trees* when they have made five or six joints, to secure stocky and fruitful wood for the next crop. *Vines* on walls will now require frequent attention in stopping, regulating, and nailing in the shoots, and if they do not receive the necessary attention there is but little probability that they will be able to bring the fruit to ripeness, or to anything like perfection. It is now a good time to *scrub* fruit trees infested with scale, as the young brood is tender, and easily destroyed.

STOVE.

Stop frequently the rambling shoots of stove plants. A sufficient amount of atmospheric moisture to be kept up by all means, regulating it in accordance with the increase of heat and light; to be accompanied with a gentle motion in the atmosphere; syringe twice or thrice a-day, and give morning air freely. Achimenes, Gesneras, Gloxinias, &c., when they begin to show bloom, to be removed to more airy quarters, keeping them partially shaded for a time, to be afterwards gradually exposed to a greater share of light.

GREENHOUSE AND CONSERVATORY.

Heaths and New Holland plants that are now making their growth to be encouraged by attentive waterings, frequent syringings, and liberal shifts. Encourage the growth of Azaleas and Camellias by keeping them rather close, with shade during sunshine, and supplying them freely with moisture from the syringe. Propagate Roses by cuttings from plants that have been forced. Continue to increase the Chrysanthemums by cuttings. Specimen and choice plants nearly done blooming to have the faded flowers picked off, to be well washed with the syringe, and to be then placed in a cool, shady situation until fresh growths have commenced, and to be then, and not till then, potted. Frequent trimmings will be necessary to keep the climbers in proper order. The young shoots of Passion-Flowers to be stopped, to hasten their blooming. Shade the bloom of Pelargoniums as they expand, and lower the temperature as far as practicable, to prolong their beauty. The same will apply to all plants in the conservatory, and no plant should be permitted to remain there after it begins to fade.

PITS AND FRAMES.

Hard-wooded plants in these structures will now enjoy a more moderate temperature than in houses, especially in pits turned to the north, which are now becoming very general, for their protection in hot weather. The propagation of all desirable plants should be persevered in, and rooted cuttings potted off, shaded, and watered when requisite.

W. Keane.

SPERGULA PILIFERA—KILLING INSECTS—CRINOLINE POTS.

When I went to the Crystal Palace to refresh my ideas of the bedding Tulips there, I made a point of seeing and judging for myself the progress and value of the Spergulas at Forest Hill, as coverings for lawns instead of grass. Opinions will differ for years on the merits of this new substitute for grass, and it is right that it should be so. Everything which comes before the public for patronage ought to be thoroughly sifted to the bottom. But during the process men's opinions must be sifted also; and if they are not backed up by some fact or external evidence, they are of no more value, in a public point of view, than the chaff of *pilifera*.

After seeing the extent and progress of the spread of Spergulas of sorts for the last twelve months at Forest Hill, and at the Crystal Palace Nursery, by Mr. Summers, I came home backed with facts, and with sufficient evi-

dence to warrant me in saying that I never said one-half of what might be said about the value of the said Spergulas, for there is more than one kind of it fit for our purpose, and that the Messrs. Henderson, of the Wellington Road Nursery, did not represent one quarter of the value of Spergula. I am deeper in it, therefore, than they are; and all that has been said against it has been merely opinion without a grain of fact or evidence. There is nothing, therefore, heavier than chaff against it yet, or stronger than a haphazard opinion.

When I was at Forest Hill in the middle of May, 1859, they were planting two large pieces of ground with *Spergula pilifera*, one on either side of a centre walk. The summer which followed, and the next winter, were the worst seasons for gardening since 1818, when I made the first observation on the weather with reference to gardening; yet during last year—the worst year on record, probably, for such an experiment—the *Spergula pilifera* has spread, and matted, and made a firmer tread-hold, than the best mixture of lawn grasses would do in two years of ordinary weather. At the Crystal Palace, where the grass came from seeds as by magic, and clean as a bed of Onions, they are yet afraid of people walking on it; but every one about the garden at Forest Hill, and all who called since that planting was finished, have walked on the Spergula-beds with, not only no hurt, but permanent good; for the more it is trampled under foot, or pressed down with the roller, the better it does. I have said already how I used, for years, to make boys and girls dance on a patch of "carpet grass"—another Spergula I had in a celebrated garden; and without thorough good rolling once in ten days or so, the first season or two, the Spergulas will not do well on light land.

These are bare simple facts, which all the opinions under heaven cannot controvert or gainsay. How "preposterous," therefore, to blow the chaff of opinion against such practical evidence. I borrow the word "preposterous" from the blower himself, as nobody now-a-days cares for opinions, whose opinion is worth caring for, unless they are supported by something which can be tested by figures or rules, just like measuring tiffany to a square inch.

The price of plants of Spergula sufficient to plant an acre at present is about £15. I am old enough to remember the time when an acre of lawn from such seeds as we use at present could not be sown under double that amount. When Mr. Sinclair wrote his "Hortus Gramineus Woburnensis," £30 would not buy the right kinds of seeds for an acre of lawn; and I am a good deal older than that "Hortus;" and if anybody had the temerity then to predict that an acre of lawn could be sown down some day at a nominal cost of as many shillings as it would then require pounds to effect, there would have been no end of opinions upon the preposterosity of the assertion, if there is such a word.

When Master George, who is now sucking his thumb, will be big enough, and rich enough, and sufficiently economical, after a rakish bout or two, to make up his mind to sow an acre of his own lawn with Spergula seeds, and finds it will just cost him 20*s*., he will refer back, only as far as 1860, when, on the authority of The Cottage Gardener, it would have cost nearly as many pounds. But, in the meantime, it is necessary that some head, or heads, wiser than the rest, should take up the Spergulas as the Messrs. Lawson took to the promptings of the author of the grass book. That was the lucky move, in Hunter Street, Edinburgh, which has placed the Messrs. Lawson at the top of the tree, for I recollect the time when their Christmas tree was first planted. The Horticultural Society have the same opening now at Kensington Gore, to immortalise their farsightedness, as the Messrs. Lawson had when they opened the museum in Hunter Street, or Square; but will they embrace it, by planting the one half of the New Garden with Spergula, which is as certain of replacing Mr. Sinclair's new grasses on British lawns, as his selections destroyed the influence of Tussoc and Cocksfoot grasses—the grandfathers of our carpet lawns at present? Or will the Society experiment on an acre of it? I fear not; such another luck as meeting with the Royal Commissioners is too much to expect of a body who was never free from internal complaints from the cradle. Besides, Dr. Lindley is against such lawns, and the Council are generally guided in their ways and doings by his opinions; at least, they used to be before this lucky start.

Mr. Summers occupies the same position now, in reference to carpeting our lawns with Spergulas, which Mr. Sinclair, then gardener to the late Duke of Bedford, obtained with reference to the proper kinds of grasses for the different kinds of land in pleasure-grounds, and he may have the good luck of being the first authority in the selections of sorts of Spergulas for the various kinds of soils. His nursery is now called the Crystal Palace Nursery, on the suggestion of the writer, for two reasons—to make it to be more easily remembered in distant parts of the kingdom, as no one will ever forget the Crystal Palace Nursery, Sydenham, after once hearing of it as the grand depôt for Spergula; and, secondly, in allusion to the boldness of the undertaking by a man who would employ his own mother to gather Ferns for him to get prizes with. He has planted three-quarters of an acre of *pilifera* for a stock garden, to draw cuttings, offsets, and to gather seeds from to supply his customers, and the rest of his holding is under plants for sale. The sale is steadily increasing. For the quantity of No. 60-pots he sent out with Spergula plants in nine months, he paid, in trade price, £25, some odd. His extended experience has suggested several improvements in the management of Spergula lawns; and next week, or very soon, I shall give the whole concern a thorough good sifting, for the good of those who will take to it. As to the croakers having any effect upon me, I can hold up against them firm as the pillars of Hercules; but I like them, their "eventualities" are music to me—food to me, in fact. I could live on croakers for months together, and get fat upon them, too, without hurting a hair in their heads.

Meantime I have another discovery made by Mr. Summers, which will oil over all the practically professional gardeners of this and the next generation, in all parts of the world, and which will be a lasting benefit to amateurs up to the coronet of a duke. It is just as simple as Spergula, as certain as electricity, and as effectual as a thunderstorm. The thing itself is a method for killing all sorts of scaly and buggy insects on house plants, and, probably, on any plants; and in corroboration of what I saw and heard of it at Forest Hill, there is a letter now before me from a youthful earl's gardener, in one of the best gardens in England, who says "Such a boon ought to be made known to all the members of our craft as soon as possible." The plan is, to touch the under side of the leaves, the stem, or bark, or wherever the insects are, or are supposed to be, with a soft very small brush dipped in sweet oil. The common salad oil of the grocers has destroyed every one of the scale and bug tribes to which it has been applied, without hurting the tenderest leaf in the stove, pit, greenhouse, frame, or sitting-room and conservatory. There is a little mug, jug, or jar of it in every plant-house in this garden, with a lid and a hole in the side of the lid for the handle of the brush, just like as for a ladle in a soup-tureen. The brush is of the softest camel's hair, and small enough to print the title of The Cottage Gardener, with a handle a foot long or more, and not so stout as a pen-holder—just such a contrivance as you might suppose a maid of honour to resort to for painting her own eyebrows when that was the fashion; but, of course, not with sweet oil, or any expressed oils, but with the essence of some far-fetched thing on purpose. Animal oils have been recommended in plant cures before this; but most of us think all fatty oils more or less dangerous to tender growth, and

if there is adulteration in sweet or Olive oil (from *Olea Europæa*), that might hurt leaves and young shoots: therefore, a key to safety is thus turned. Try your sweet oil first on a Geranium young leaf which is full in the sun, and draw the oiled brush gently under the leaf, so that every part is just wetted and no more, and if nothing bad seems to come to that leaf from oiling it, of course nothing in the oil would hurt any other leaf, and that one application on the Geranium leaf would kill as many brown, white, blue, and blotched bugs as the oil would reach. The same with the dry, hard, white and grey scales from all foreign parts. But the Cochineal insect, or bug, which I have unpacked in tens of thousands on the *Cochineal opuntia*, from Mexico, and the "Apple bug," or white woolly bugs on Apple and other fruit trees, must get a surer dousting before the oil can get through their woolly envelopes. Like all great and useful discoveries, this was found out by mere accident. Mr. Summers and some of the men were doing something to springs, hinges, or bolts, or something which I forget, but the thing needed oiling, as most writers do at times. The oil-cruise was at hand, and some plants had to be shifted from one shelf to another, one of which, fresh from a London nursery, was as scaly as a badger under leprosy. To kill such a plant would only be doing oneself justice, and here goes the killing agent. The leaves were oiled with the sweet oil, after the manner of a cart wheel; but next day, and the next, and a burning sun saw no signs of hurt. The scales scaled off, however, in broad, thin, filmy flakes. All the plants that came in that basket, and all that were suspected of under-surface kind of work on the premises, were oiled over as gently as possible; and I was offered a sovereign for every bug or scale that I could find in all the house. I asked to look at certain Mammillarias and Echinocacti of the same section as Scopa. These being the most difficult kinds to clean, and always the heaviest infested with these troublesome insects, on their first arrival from the arid slopes of "Terra Calienta," in Mexico. I was shown over a large collection of the various sections of Cacti, but they were all as clean as a pincushion, and I gave up the hunt.

Another thing, which was quite new to me, tickled my fancy, and confirmed the experience of my own life; and it is this—that I never knew a gardener yet who was self-taught without his mind running in a different circle from the minds of those who had their knowledge crammed into them, like cramming fowls for the spit; always on the go, and never in the old paths, but *feeling his way*, and mending it as he went along; taking neither money, nor time, nor precepts solely on trust, but trying all and proving all—that is, such men lead an experimental life, so to speak, and all the world could never lead them out of it. This new contrivance is a galvanised wire flower-pot, and of as many sizes as clay-made pots, and the same shapes as the old ones. Plants of almost all kinds have been found to grow in hanging-baskets made of wirework as well as in ordinary pots—witness the hanging-baskets at the Crystal Palace. To make basket-pots—say from the size of 48's to any of the larger sizes, a top rim and a bottom rim of the sizes intended are first welded together by three upright wires of the same size as that in the rims, the uprights being of the same length as the depth of that sized pot. Then with very small wires make hoops to reach round the uprights, and fasten each hoop to the uprights; the hoops to stand an inch apart all the way up, or nearly two inches for some kinds of plants—as Ferns, Orchids, and succulent-rooted stove plants. These pots have now been nine months in use; and every kind of plant, from Heaths to Ferns, is growing in them just as well as in pots. The shape being the same as that of common pots, balls can be shifted from pot to pot just as in the old way. This is the right kind of pot for Orchids at last. In filling them, the bottom and sides are lined with small lumpy pieces of peat or loamy turf, and the centre just as for common pots. They look exceedingly well, and are called crinoline pots, for they are made on the same principle; only what is an inverted Tulip in crinoline is here the upper part—the widest, like the fair Tulip itself. Mr. Summers, Crystal Palace Nursery, Sydenham, is going to invade the kingdom with these crinoline pots as soon as the twelve months of the experiment have proved that they are just as useful for the roots of plants as crinoline has been on the health, strength, and vigour of the rising generation; for it has been proved by philosophy that air is the very life of all living things. Therefore, the more of it at the roots and at the onstart of our kindred, the more healthy and more blooming will the two races come up to the starting-post.

All the plants in this establishment look as if the winter had been in no way uncommon, except what are otherwise noticed below. Miniature orchard trees are, or were then, gone over every day, and all growths stopped at the third joint; no root pruning is allowed, but most of the trees are yearly transplanted. Orchard-houses as good and promising as can be. Pears not taken inside till the bloom is just opening, unless a sharp night threatens destruction. No other way seems so good to secure a full crop of Pears under this temporary help.

Mr. Summers sold every leaf of his *Crystal Palace Scarlet* Geranium before the middle of May, and had to forego orders for it from other London firms to the tune of one hundred dozens to supply their customers, who must go without them for one more season. Several private gardens in the country had this Scarlet from me as far back as 1844-5-6-7-8—Trentham gardens among the rest. I think it was in the summer of 1844 that Sir Edward Kerrison married. He was a neighbour, and visited at the birthplace of this bedder, and that autumn I was going along the terrace one afternoon, and saw a lady and gentleman sitting at the top of some flight of steps: they were Sir Edward and Lady Kerrison, waiting for me to come up to get a leaf out of my book for managing "these *Tom Thumbs*" better than they had seen them elsewhere. "This is a second cousin to *Tom Thumb*," I replied; "for *Tom* does not do very well here." And I shall warrant Sir Edward recollects what they heard of the stud-book that afternoon. Two years after that the Duke of Bedford, the Marquis of Exeter, and the late Sir John Shelley—three Newmarket men—with Baron and Lady Parke (now Lord and Lady Wensleydale) and a large party, heard of the garden stud-book and this bedding Geranium before them for the first time, and they—the turf celebrities—were amazed that such things could be done with flowers. Lady Wensleydale was the only gardener among them, and could tell them that without registering the pedigrees of crossed flowers, the same as for the racecourse, the one would be as much in confusion as the other; and one might safely add, the one would open the door to blacklegism as the other. The Verbena *Beauty Supreme* was registered that day by Lady Parke as her seedling, bred at Ampt Hill, I think. Mr. Dick, who I said raised the best of the Improved Frogmores, *Lady Agnes Byng*, has written to say that Mr. Grant, whom he succeeded at Livermere, was the raiser of *Lady Agnes Byng*. I knew Mr. Grant, who is now dead; but Mr. Dick tells me that Mr. Grant told him that he raised *Lady Agnes Byng* from the *Frogmore Scarlet;* also that he, Mr. Grant, gave some of that batch of seedlings to a Suffolk gardener before the plants bloomed, and that he had reason to believe that *Tom Thumb* was one of those very seedlings. "I therefore believe," adds Mr. Dick, "that Mr. Grant was the raiser of the two," meaning *Lady Agnes Byng*, the best "Improved Frogmore," and *Tom Thumb*. The father and grandfather of the "youthful Earl" aforesaid have grown this *Crystal Palace Scarlet* in their extensive gardens since 1846 or 1847, I forget which, to my knowledge; and Mr. Summers, of the Crystal Palace Nursery, has made arrangements already to strike one hundred

thousand cuttings of it next autumn from the said gardens to meet the demand for it which he anticipates from what he sent out this spring. How strange the world goes round! Does it not? D. Beaton.

KEEPING PERILLA NANKINENSIS THROUGH THE WINTER.

I have a greater quantity of *Perilla Nankinensis* than I want for my beds this spring. Can I pot them three in a pot, and keep them with the bedding plants through the winter for next year? —Hanley.

[We are not aware that any reliable experiment has yet been made to prove if it would pay to keep this Perilla over a summer and winter to come earlier next season. Can you depend upon it that your present plants shall receive the necessary care to decide the point? If so, pray go on, and let us hear from you on the point. We are just in for the very same experiment ourselves, and should be glad of many helps to decide the fact at once. It is well worth the little trouble it will cost any one.]

CEPHALOTUS FOLLICULARIS.

Having previously noticed the Nepenthes, I will now endeavour to make some remarks on the New Holland Pitcher-plant, which is found growing in the marshes of King George's Sound. And here I may remark, the two are perfectly distinct; for while in some cases the Nepenthes reaches the height of twenty or thirty feet, the Cephalotus rarely exceeds two inches.

For its successful cultivation a warm greenhouse, or intermediate-house, is necessary. Thumb-pots will be found most convenient for ordinary-sized specimens; and equal parts of peat, sphagnum moss and silver sand the most suitable compost.

After potting, the small pot should be placed inside a 48-sized or 32-sized pot, the space between the two to be filled with small potsherds to within about one inch of the rim. This should be filled with the mixture named above, and neatly clipped over. The whole must then be covered with a clean bell-glass.

The plant requires to be carefully watered at all times, especially during the winter months, when only a small quantity of water will be required.

By May or June the small white flowers will appear, from which seeds may be saved; but the most ready way of propagating is by slips or side-shoots, which will root freely if treated the same as recommended for growing the plant.—J. Shuter, *Gunnersbury Park.*

BUILDING A SMALL GREENHOUSE.

I have decided upon making a greenhouse similar to that called by you a "five-pound" greenhouse, which stands first in your Manual, "Greenhouses for the Many," but reducing the dimensions somewhat. As, however, it is very likely I may have to remove it at some future time, I have decided to make the four sides and top complete in themselves, and unite them with screws. The back will be composed of wood and glass similar to the front and sides. I presume this will make no difference in the preservation of the plants. As the house is intended to be a portable one, I do not wish the floor to be made of bricks. Do you think a mixture of lime and ashes, or ashes, soot, and salt, would answer if made hard? I name the two latter ingredients to keep out the slugs, which are very troublesome. I do not propose to build any foundation for the walls to rest upon, but to make the earth solid, and fasten by stakes at the four corners, at each of which I should have a small pier of bricks. The dimensions being rather small, and the height being built to correspond—viz., five feet high at back, and three feet in front, I propose to sink a path in the inside, say eighteen inches, and to line the sides of the path with slates cemented. My chief difficulty, however, rests with the stove or heating apparatus. I propose to have one made lined with fire-bricks, the piping to carry off the gaseous vapours. I think of fixing it under the shelf on which the pots are placed, and making it emerge at the opposite corner. Do you think this would increase the heat without any unpleasant effect, or would the piping be likely to leak and affect the plants? Should there not be sufficient draught for the stove, I am thinking of having a tube made which shall communicate at one end with the open air, at the other with the register of the stove, and by means of a stop-cock be thus enabled to regulate the current of air at pleasure. Do you think that such a stove would prove equal to warming the house properly (an ironmonger in the town agrees to make one by my model, and include the requisite piping, for £1 5*s.*), or would a hot-water apparatus be more advisable? If so, can you recommend me a plan, or give me the number of The Cottage Gardener where I shall find one described?—A Lincolnshire Amateur.

[We approve of your plan. The more glass you have the better will the plants thrive; but the more care will they require, and the greater necessity of guarding against cold, inasmuch as the heat inside will radiate so much quicker through glass than through wood. On this account your *wooden* walls, as you may term them, will be warmer than brick walls, if your wood is fully two inches in thickness. You are right to think nothing of foundations. For a house of such a size, we do not think that even posts would be necessary; its own weight would keep it steady, unless in some extraordinary weather. For this purpose we do not even see the necessity of piers, if the house is to stand above the ground level on them. We would as soon set the house at once on ground concreted, such as you propose making the floor of. In that case the wood next the ground will decay soonest; but a fresh piece at the bottom in some half dozen years will cost little more than the brick piers. If anxious to avoid that, one row of bricks might be laid on the hard ground, and the house set on them, which would so far secure the boards from damp and decay. Now for your floor. You are right in discarding bricks, tiles, &c., under the circumstances, but have nothing to do with salt, as it will keep your place damp for ever so long. The lime and cinders will keep worms and slugs from rising, and, of course, you must prevent the outside ones getting in. Proceed thus—level the ground, and beat it firm for a length and width, two feet more than the length and width of your house. Make the space quite as high as the surrounding ground after being well rammed. Then sift the very finest part out of your ashes, and to every three barrowloads add a barrowload of lime. Work with sufficient water to make mortar, not thin, and lay it down and spread it four inches thick. Smooth it with the back of a spade, and when still wet throw an inch or two of fine drift sand or gravel over the top, and when a little dry on the surface, beat or roll it firm. This will give you a very nice, firm, clean pavement inside; and it should be so made that the space of it outside should slope from your house all round, so as to take the wet away. We have said the space outside should be two feet or so; but if three or four it would be better. But the width must be regulated according to your circumstances. The object is to send off the water that falls from the building. For the outside a little coal tar spread on the ground, and enough cinders thrown over it to roll in firmly, would suit the purpose; but have no tar nor salt inside, or your plants may suffer for ever so long. We hardly understand your mode of heating, as you speak of making one with fire-bricks, and also of having one from an ironmonger. If the stove were of brick,—any brick would do,—and it would be as well to have the furnace-doors outside. The position of the pipe is all right, and there will be draught enough if the pipe is wide enough—say, not less than four or six inches in diameter. If much smaller it will clog with soot; of course, draught will be regulated by register or damper. There will be no danger from the joints if they are luted when put up. We think the stove from the ironmonger will suit well enough. If the place is your own, you will feel more interest in it than if it were anybody's else. Otherwise, any small, cast-metal stove would give you heat enough, and suit for keeping the cold out from common things. Having one made as you represent will be a great improvement as respects the evaporating-dish, &c. You might also have evaporating-pans over the pipe. We do not think, however, your evaporating-pan over the furnace will suit that purpose, and striking cuttings too; it will be apt to be too hot at times, and to get too dry at other times. Better have another one to go over it or in it, but separated from the bottom with little knobs of anything. The heat may thus be kept somewhat uniform. We have no great faith in your evaporating-vessel in front of the stove. We would trust as much to moistening the ground round it. But the double basin would act well. We perceive, from the account of the air-pipe with stop-cock for regulating draught, that your stove is to be entirely inside the house. No doubt it will answer if always attended to by yourself; but the house will be close indeed if the stove do not draw without the air-pipe. Now, as

to comparison. Such a small stove of brick, or a double tube of iron, with a pipe leading from it into the open air, well luted at the joints, will be the best and the cheapest for keeping all such plants as you first mentioned safely over the winter. But, if in addition to this, you contemplated turning your little house into a propagating-house in spring, then the shelf should be changed into a small bed over the pipe, so that the heat from it should be thrown first into some clinkers, rough gravel, &c., and covered with sand or tan. Then, farther in comparison, we would prefer for such a purpose a modification of Rendle's tank-heating. But unless you make your house on the Waltonian Case system, and heat it by gas, or candle, or get your friend the ironmonger to make a small boiler for you, not much larger than a fair-sized tea-kettle, and so hollowed as to hold some two quarts of water or less, and you could have a small furnace outside the house, the trouble and expense would be so great, that we would certainly adhere, as the house is moveable, to a very small moveable metal stove. We feel convinced that when you can keep with it your hardier plants over the winter, that then with your contriving and inquiring mind, you will soon make that little stove sufficient for propagation or anything else. We may just add that, if you still prefer a fire-brick stove, you might also have hard-burned earthenware pipes for the flue; but in a moveable house nothing would be so easily moved as a couple or three pieces of iron piping and a small stove, some twenty inches or so in height, or less. A square one would suit your evaporating and striking-dishes best, but we presume a round one would be rather cheapest. With a double dish inside your evaporating-main you may strike a great many plants successfully, more especially if you could place a small hand-light over the cuttings. Another similar glass would be useful for placing your cuttings in when struck, to harden them gradually to the common temperature of the greenhouse. Thus: supposing in spring you kept your house at an average of 45° at night, with a rise from sunshine of 10°, with a sufficiency of air; by means of the glass case, or merely a little box with a square of glass to lie over it and a slight covering when necessary, you might keep your cuttings at from 50° to 70°, and shade at pleasure. As soon as struck take them out, and place at first under the other glass; and then, by regulating the air, the plants will be warmer than on the shelf of the greenhouse, and may be hardened with more and more air every day, until they will be quite at home in the general atmosphere of the house. It is by attention to such little niceties as these, and not by great general or professional knowledge, that success will ultimately be gained. To the neglect or contemning of such niceties and little things most failures may be traced. Old gardeners of the present day complain of nothing so much as the neglect or contempt of these details among their young assistants. A young man who has lived in some good places will take plants out of a hotbed, pot them in a cold shed, go off to dinner and leave them there, and replace them, perhaps, in a colder pit in a couple of hours, and then wonders how or where such lots of insects come from. "Avoid sudden changes" is the first rule as respects plants under glass.]

SLUGS.

In the garden and fields slugs are a nuisance, inasmuch as they are destructive to many tender and choice plants; and to prevent their depredations the most effectual plan is to kill them. This is childish advice, it may be answered; but it is not childish to show how to catch and destroy them.

The means are various and simple; and as they are shy intruders by day and early risers, the gardener must be up too (not upstairs) seeking them—in the summer months as early as three or four o'clock, just before they are skulking to their hiding places. They may be gathered into an old watering-pot; and should he collect them by thousands, an ounce of salt sprinkled amongst them will kill all. But gardeners will reply, "This is too much to be expected from us, whose working hours are only from six to six, without being extra paid." Be this as it may, recollect it is your duty to watch over your master's interests at all times; and you are bound not to neglect important duties affecting your calling. I grant, however, that you may as reasonably expect remuneration. And let me remind masters and mistresses that it is equally as incumbent on their part to pay for extra work, either directly by money, or indirectly by perquisites. "The servant is worthy of his hire."

Salt, also, strewed in rings around plants, so as not to touch them, is necessary, either to destroy slugs or to prevent their approach. It would not disgrace the master or mistress to attend to those minor requirements, if the gardener is necessarily employed on the lawn or elsewhere, and they would find themselves well repaid (for it must be done, or their crops will be lost).

Traps may be set for catching slugs overnight, and examined at early rising; and these are of various kinds—such as fresh Cabbage leaves, slices of Turnips, &c.; lastly, ducks will effectually clear off slugs and other insects.

A brood of ducklings may be trained to enter and depart at the garden-gate by one's bidding or call. I have a brood so docile as to follow me to where I please—not only into the garden, but also into my fields, simply by my strewing a small quantity of corn on the way, further each morning by degrees, and staying where I please to feed them more freely: and there I abruptly leave them till eventide, when I invite them home by the usual call—taking care to feed them then to their fill, and only then, during the day. A hole is left open after their bedtime in the duck-house (as should be in all fowl-houses, for egress as early as they please), not so large as a fox may enter; and they may be seen perambulating and at their morning repast of slugs and other insects amongst my corn crops, as early as three o'clock in the month of June. Instinct teaches them to find water, which they will do in the daytime, by hook or by crook, to catch aquatic insects. After my own breakfast they are always at their post, waiting for me to give them their scanty meal where I think proper, and they will follow me even to two fields off. Ducklings for training should be bought when about a month old—say at 6*d.* each, when the hen deserts them, as they are more troublesome to be reared to this age than ever afterwards, when they will in a great measure shift for themselves. They are great gourmandisers, and will not pay for keeping if shut up and restricted what to eat till they are three months old.

Ducks' as well as hens' eggs are said to be more addled this season than usual, by reason of cold weather during the hen's sitting and leaving her nest. Old people tell me, that during prevailing north winds they are always subject to failures, and that the reason why ducks' eggs so often fail brooded by a hen is, because the eggs are neglected to be dipped in lukewarm water every time the hen comes off to feed, assigning as a reason that the natural mother duck always has a swim before she returns to her nest to brood; consequently, goes on to her eggs with her body wet, hence the idea of dipping the eggs in water to substitute this requirement.—Abraham Hardy, *Seed Grower, &c., Maldon, Essex.*

THE STRAWBERRY "SIR HARRY."

I did not question the good qualities of *Sir Harry* for late forcing, but have proved it will not do for early work under the same conditions as *Keens'*, as a batch I tried with my earliest *Keens'* did no good. I may add, they were extra-strong plants, potted and treated in every respect as the others.

I have gathered *Keens'* an ounce weight at the middle of April, with as good flavour as out-door ones.

Did any of "Q. Q.'s" fifty weigh half an ounce? If they averaged a quarter of an ounce it was a good weight for one plant, which, of course, they would do, or he could not call them good-sized ones. As it was not one of the best plants, we may safely reckon the average at a pound weight the plant, which at 4*s.* the ounce, would make a nice thing. Surely Mr. Smith could not do that, even with the beautiful sorts he exhibited at the Crystal Palace, or he would retire from business in a season!

The *Sir Harry* does not appear to be known out of the Midland Counties, I will send you some of the sort which came direct from the raiser. They should be dead ripe, or they are acid. I have kept them almost a fortnight after they looked quite ripe.

I do not agree with your correspondent that the day of *Keens' Seedling* as an "early forcer" is past. Of course, there is plenty of larger, handsomer sorts to come in at the end of April, but any sort would come in then.—J. T.

Large Cucumber.—We have been favoured by Messrs. Butler & McCulloch, of Covent Garden, with a view of a very fine specimen of their Cucumber *Empress Eugénie*, which measures 28 inches long, 8¼ inches in girth, and weighs 4 lbs. 1 oz. It is very handsome, straight and smooth on the surface, not at all ribbed, and with small white spines. It is of a fine deep green colour, covered with a delicate bloom.

THE SCIENCE OF GARDENING.

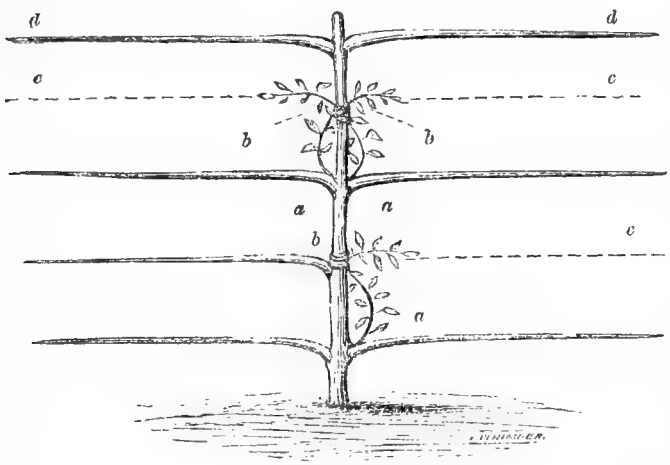
(*Continued from page* 73.)

Inarching differs from grafting only in having the scion still attached to its parent stem whilst the process of union with the stock is proceeding. It is the most certain mode of multiplying an individual that roots or grafts with difficulty, but is attended with the inconvenience that both the stock and the parent of the scion must be neighbours.

One of the most ingenious applications of inarching is suggested by Mr. Knight. If a fruit-bearing branch becomes denuded of its leaves above the fruit it has produced, this either falls, or remains stunted and deficient in flavour, owing to being thus deprived of a supply of the elaborated sap or proper juice. In such case a branch having leaves of the same or of a neighbouring tree, may be inarched to the denuded portion of the branch, and the fruit will then proceed to maturity. Mr. Knight's experiment was tried upon a Peach tree, the fruit of which he was anxious to taste, but which produced that season only two Peaches, and from the branch bearing which all the leaves had fallen.

Another excellent adaptation of inarching is where the same tree supplies both the scion and the stock. Mr. Thompson thus describes this adaptation by M. Fourké to Pear trees at Corbeil, in France. The trees had been planted when large and irregularly grown, having, in some places, a redundancy, in others a deficiency, of branches. With the view of supplying branches where wanting, inarching the *growing extremities* of adjoining shoots to the parts of the stem whence the horizontals should proceed, was adopted.

Supposing the branches of a tree are trained horizontally a foot



apart, with the exception of some where the buds intended to produce branches did not break, as is often the case; then a shoot (*a*) is trained up, and, when growing in summer, a small slice is taken off near its extremity, and a corresponding extent of surface immediately below the inner bark of the stem is exposed; the two are joined together, and the point of the shoot (*a*) is inclined in the direction to form the branch (*c*).

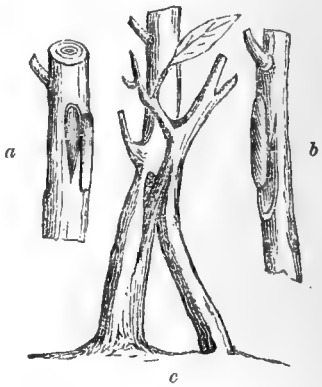
The most remarkable feature in the trees at Corbeil, was the uniformity of vigour in the respective branches. It appeared as if the supplied branches, *c c c*, had been allowed to grow in connection both with the stem at *b b*, and the branch from which they originated at *a a a*, till their length and thickness corresponded sufficiently with that of the branches above and below them. This is a great advantage which the mode possesses over budding or side-grafting. At the distance of a foot apart for the horizontal branches, it takes as many years to cover the wall as the latter is feet in height; for although the leading shoot may grow three or four feet in length in a season, yet by shortening it to two feet, although the branches *d d* would be produced, the buds at *b b*, to furnish the intermediate stage, most probably would not. In fact, the attempt to form two tiers of horizontals in one season is generally followed by more or less disappointment. The intermediate stage might, however, be readily supplied by the method above detailed; and a wall twelve feet high might be covered as well in six years as it otherwise would be in twelve.—(*Hort. Soc. Journal*, ii.)

The usual mode of inarching continues the same as it was when thus described by Abercrombie:—

"To propagate any tree or shrub by this method, if of the hardy kind, and growing in the open ground, a proper quantity of young plants for stocks must be set round it, and when grown of a proper height, the work of inarching performed; or if the branches of the tree you design to graft from are too high for the stock, stocks must be planted in pots, and a slight stage erected around the tree of due height to reach the branches, and the pots containing the stock placed upon the stage.

"As to the method of performing the work, it is sometimes performed with the head of the stock cut off, and sometimes with the head left on till the graft is united with the stock, though by previously beheading it the work is much easier performed, and the supply of sap will be directed to the nourishment of the graft.

"*Side Inarching with a Tongue.*—Having the stocks properly placed, make the most convenient branches approach the stock, and mark in the body of the branches the parts where they will most easily join to the stock, and in those parts of each branch, pare away the bark and part of the wood two or three inches in length, and in the same manner pare the stock in the proper place for the junction of the graft; then make a slit upward in the branch so as to form a sort of tongue, and make a slit downward in the stock to admit it; let the parts be then joined, slipping the tongue of the graft into the slit of the stock, making the whole join in an exact manner, and tie them closely together with bass, and afterwards cover the whole with a due quantity of clay, or wax. After this let a stout stake be fixed for the support of each graft, and so fastened as to prevent its being disjoined from the stock by the wind."



a. The stock, with an under tongue prepared.
b. The scion with upper tongue to insert into *a*.
c. The stock and scion united.

Side Inarching without a Tongue is the most simple and most usual mode of inarching. A slice of bark and alburnum of similar dimensions in both stock and scion are removed at the point where they are intended to unite, as in *fig.* 1. These

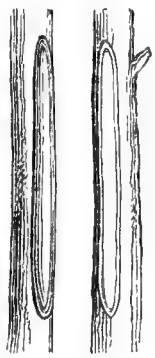


Fig. 1.

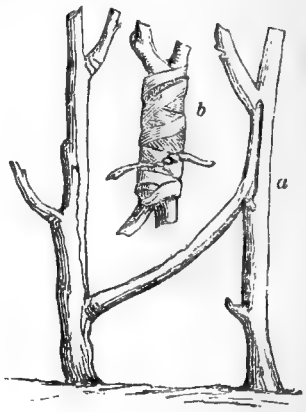


Fig. 2.

parts are placed face to face, so that the barks and alburnums of the two wounds are brought in contact, as at *a*, in *fig.* 2. They are then bound firmly together with strips of bast mat, as represented by *b*. The whole is then enveloped with moss, to be kept moist, or by an egg-shaped mass of grafting clay.

The operation being performed in spring, let the grafts remain in that position about four months, when they will be united, and they may then be separated from the mother-tree; in doing this be careful to perform it with a steady hand, so as not to loosen or break out the graft, sloping it off downwards close to the stock; and if the head of the stock were not cut down at the time of grafting, it must now be done close to the graft, and all the old clay and bandage cleared away and replaced with new, to remain a few weeks longer.

Observe, however, that if the grafts are not firmly united with the stock, let them remain another year till autumn, before you separate the grafts from the parent tree.

Saddle Inarching is effected by heading down the stock, cutting its top in the form of a wedge, and then it is cut with an upward notch, and fitted on to it, as shown in *fig.* 3. The parts are bound and clayed as in the other modes of inarching. A ring of bark is removed down to the wood from the scion-branch. This removal checks the return of the sap, accumulates the cambium about the wound, and consequently promotes the union between the stock and the scion. It is a judicious practice, because the fact that many trees and shrubs which are propagated with difficulty by grafting, can be readily propagated by inarching, points out that in them the deficient supply of cambium is the cause of the scion and stock failing to unite.

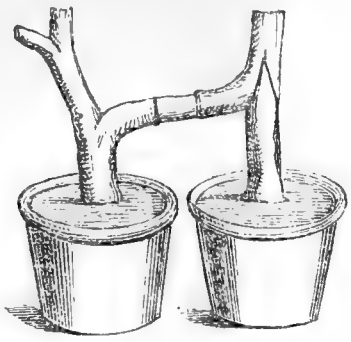


Fig. 3.

When the stock is much larger than the scion to be united to it, the following modifications are practised. The top of the stock is cut off slanting on one side only; then a long tongue is cut in the scion of only one-third of its thickness, and as much of the bark and wood is cut from the back and front of the stock as will correspond with the length and width of the scion's tongue. A ring of bark is also taken off as just described, and the whole when adjusted previously to binding with bast and claying appears as in *fig.* 4.

Fig. 4.

Fig. 5.

Inarching with partly-nourished Scions.—This is merely side inarching with the lower end of the scion plunged in a pot of moist earth, or filled with water, as in *fig.* 5. The water requires renewing occasionally, and a slice from the base of the scion being cut off at the same time, to be then replaced in the fresh water. This mode is sometimes adopted for Camellias. The top of the stock in this mode should not be cut off until the scion and the stock have united.—(*Loudon.*)—J.

(*To be continued.*)

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page* 151.)

STRAWBERRIES.

Fillbasket.—Fruit rather large, roundish, sometimes flattened on the sides. Skin dark red. Flesh pale red throughout, very acid, and without much flavour.

Goliath. See *Kitley's Goliath.*

Great Exhibition (*Exhibition*).—Fruit medium sized, oblong, ovate, or irregular. Seeds prominent. Skin bright red. Flesh dull yellow, very woolly and worthless.

The plant is a great bearer, but otherwise not worth growing.

Highland Chief.—Fruit large, roundish-ovate, and somewhat flattened. Seeds not deeply embedded. Skin fine, clear red, becoming darker red as it ripens. Flesh dark red throughout, very firm and solid, very juicy and vinous, and with a rich pine flavour.

A very excellent strawberry. The plant is a most abundant bearer, and deserves universal cultivation.

Hooper's Seedling.—Fruit large, conical, rarely flattened, but sometimes deeply furrowed. Seeds rather deeply embedded. Skin dark red, assuming a very deep blackish tinge as it ripens. Flesh crimson at the exterior, but paler towards the centre, sweet, brisk, and richly flavoured.

A good bearer, and an excellent variety for general purposes.

Ingram's Prince of Wales.—Fruit very large, flattened and wedge-shaped, the smaller fruit ovate. Seeds not deeply embedded. Skin deep crimson, becoming darker as it ripens. Flesh pale red, very firm and solid, brisk, sweet, and richly flavoured.

An excellent variety, and admirably adapted for forcing.

Keens' Seedling.—Fruit large, ovate, sometimes inclining to cockscomb shape. Seeds not deeply embedded. Skin dark crimson, becoming very dark when highly ripened. Flesh scarlet, firm and solid, juicy, brisk, and richly flavoured.

An old and well-established variety, which, for general purposes, has not yet been surpassed.

Kitley's Goliath (*Goliath*).—Fruit very large, compressed and wedge-shaped, the smaller ones ovate. Seeds deeply embedded, which gives the surface a rough appearance. Skin deep red, colouring equally all over. Flesh white, solid, briskly and richly flavoured, but not equal to British Queen, to which it is similar. It is, however, a better grower and better cropper.

Mammoth (*Myatt's Mammoth*).—Fruit immensely large, flattened, deeply furrowed and ribbed, irregular and uneven in its outline. Seeds small and very slightly embedded. Skin glossy, of a fine deep red colour. Flesh scarlet throughout, firm and solid, even in the largest specimens, and of a brisk and pleasant flavour, which is rich in the well ripened fruit.

The foliage is small, and on short footstalks, and permits the fruit to be well exposed to the influence of the sun.

Marquise de la Tour Maubourg. See *Duchesse de Trévise.*

Myatt's British Queen. See *British Queen.*

Myatt's Eleanor. See *Eleanor.*

Myatt's Eliza.—Fruit above medium size, ovate or conical, with a glossy neck. Seeds not deeply embedded. Skin light red, becoming deep red when highly ripened. Flesh scarlet on the outside, but paler towards the core, firm and solid, very juicy, and with a particularly rich and exquisite flavour.

This is one of the richest flavoured of all the varieties. The plant is a pretty good bearer, and hardier than the British Queen, to which it is, under all circumstances, superior in flavour.

Myatt's Globe.—Fruit large, roundish-ovate, even and regular, and with rather prominent seeds. Skin pale red, or rose coloured. Flesh white, but not solid at the core, of a rich and excellent flavour.

The plants are most abundant bearers.

Myatt's Mammoth. See *Mammoth.*

Myatt's Seedling. See *Filbert Pine.*

Myatt's Surprise. See *Surprise.*

Ne Plus Ultra.—Fruit large, cylindrical or oblong, frequently assuming a digitate shape. Skin very dark red. Flesh remarkably firm and solid, with a rich and pleasant flavour.

This is a singular variety, many of the fruit being so divided at the apex as to appear like fingers.

Nimrod.—I have not yet been able to meet with what is said to be the true form of this variety, all the plants I have seen in fruit having proved to be the same as *Eleanor*.

Old Pine (*Black Pine; Carolina; Scarlet Pine*).—Fruit medium sized, ovate, even and regular, and with a glossy neck. Seeds prominent. Skin deep red. Flesh pale red, very firm and solid, with a fine sprightly and very rich pine flavour.

After all there are very few that equal, far less surpass, the Old Pine in flavour; but it is not a good bearer.

Omar Pasha (*Rival Queen*).—Wherever I have met with this variety it has proved to be the same as *Myatt's Eliza*.

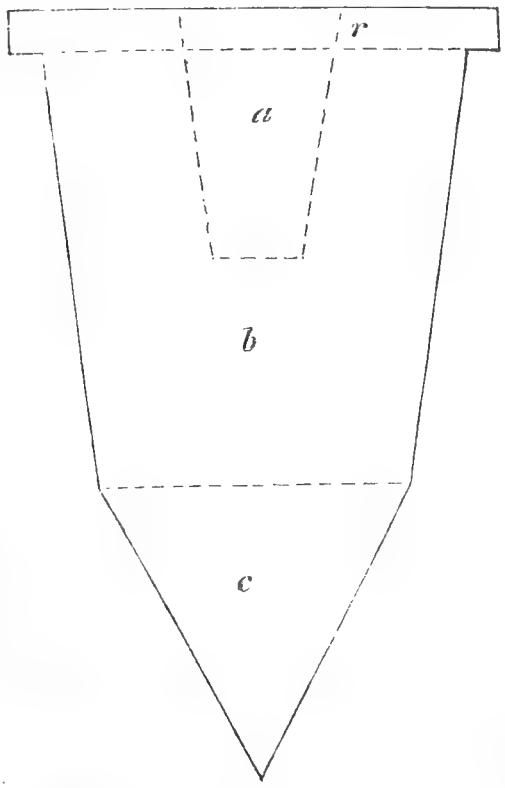
Oscar.—Fruit large, ovate and angular, sometimes flattened and wedge-shaped. Seeds rather large, and deeply embedded, which give the surface a coarse appearance. Skin dark shining red, becoming almost black when fully ripe. Flesh red throughout, very firm and solid, juicy and richly flavoured.

An excellent variety for a general crop, coming in a few days after Black Prince; and from its firmness bears carriage well.

(*To be continued.*)

DIBBLE FOR PLUNGING POTS.

I send you a description of a dibble I have had made for plunging pots, which I think will be a great saving of time where large quantities are so plunged. The dibble-heads are made exactly the size of the pots to be plunged, or at least nearly so; with the addition of a tapering end for piercing the ground, and a rim for making a depression in the soil to allow the pots to be below the surface if required.



a Socket for handle.
b Dibble-head, size of pot to be plunged.
c Point making cavity beneath pot to exclude worms.
r A projection making an indent in the soil to receive the rim of the pot.

The advantages of the plan will be found in quickness—and by keeping the handle of the dibble about upright, the pots drop in their place quite level; for watering; and, last and not least, the worms cannot get in at the bottom of the pots, as the pots rest where the point of the dibble commences.

I have had two made for 48 and 60-size pots. They are turned in hard wood, and the cone-shaped end is shod with iron. The best way would be to have them altogether of cast iron, if the demand would pay for it, with large holes for handles in the 48's, and much smaller ones for 60's; as, the more weighty the dibble is, the less force is required to thrust it into the soil. I use an iron crowbar as a handle for my wooden pot-dibbles; and in ashes, or where the ground is loosened previously by the fork, one person can make the holes nearly as fast as a second person can put the pots into them. Several gardeners have seen these dibbles, and think the plan is good. I hope some one will try and report progress. I have very few plants to plunge. I had them made to prove the plan. I think they are very useful, but I must not judge my own. I have planted some few Geraniums with them, and other things as well. My borders and flower-beds are very light soil: therefore the soil is not too much compressed by using the said dibble, if it is well lightened up previously.—J. G., *Gardener, Fulham.*

THE ROSE OUT OF DOORS.

(*Continued from page* 155.)

Diseases.—*Canker.*—This may be caused by the roots getting down into a subsoil that has iron in it, or other poisonous matter. It shows itself by the ends of the young shoots dying off, or by swellings, which soon begin to exude sap and spread round a branch, which then dies. If a tree is already attacked by this disease, and the subsoil is the cause, then take it up, prune in the roots, and cut out the cankered shoots; then form a concrete with cement, sand, and old lime rubbish in the place; and as soon as it is set, replant the Rose trees in fresh soil upon it. In forming new plantations, examine the subsoil; and if it is not good, concrete a space under each tree at first, to prevent canker, for it is easier to prevent a disease than to cure it.

Plethora, or too great luxuriance, so that the wood does not ripen, and then is liable to be killed by frost; or, if not killed, to produce unhealthy shoots the succeeding year. Plethora may be cured by lifting the trees and adding to the soil lime rubbish, road-drift, or sand, giving no manure till the trees have exhausted the soil, and evidently require help in the shape of enriching food.

Unhealthy Sap.—In hot weather, when no rain falls for weeks, this sap forces its way through the pores of the leaves, covering them with a sweet clammy exudation popularly known as honey-dew, which chokes the pores of the leaves, and induces premature falling off. This may be cured by watering with a weak solution of salt and water: this corrects, as it were, the unhealthy secretions. This remedy has been proved to be effectual.

Constricted Bark is certainly a disease. The variety grafted swelling faster than the stock; and if not relieved it will in a gale of wind break away from it. When the stem of a standard does not swell equally with the head, it may be relieved by inserting the blade of the sharp knife near the ground, and drawing it upwards (keeping hold of the bark) to the grafted or budded part. If one of these longitudinal cuts does not effect a cure, make another on the opposite side. I have found even four incisions equi-distant necessary to give entire relief to constriction.

And lastly, *Mildew*, the most formidable of all diseases to this tree. The leaves attacked by this pest appear whitish, in blotches, and feel rough to the touch. It causes the leaves to crumple and contract, and soon spreads to almost every leaf on the tree, deranging the functions of the sap; and finally, if not arrested, destroying the leaves, and, of course, injuring the entire tree. If examined with a powerful microscope it will be immediately perceived that this disease is caused by species of fungus, or tiny Mushroom. This disease appears most strongly in cold, damp, still weather, such a state of the atmosphere being suitable for the growth of fungi. If a plantation of Roses, whether standards or dwarfs, is annually subject to this disease, I would advise the application in the autumn of the following:—Half a pound of soft soap, and half an ounce of black pepper, to one pound of sulphur, boil in four gallons of water for twenty minutes. It

should then be as thick as paint. Apply it in a lukewarm state on a dry day. If the disease is partial only, then in dewy weather dust the leaves with flowers of sulphur, persevering daily till the complaint is cured. In hot, dry weather, with cool nights, mildew appears rapidly. This might be prevented by heavy waterings at the roots, and syringing with sulphured water occasionally.

Insects.—The insects that trouble and feed on the Rose are the green fly or aphides, earwigs, red spider, *Cynips rosæ*, and some of the genus *tipula*, which are the cause of the wrapping up and shrivelling of the leaves. The green fly in the open garden may be destroyed by washing the parts affected with tobacco water with a syringe, or the shoots may be gently bent down and dipped in tobacco water. Earwigs feed on the flower leaves. They may be caught in hollow Bean-stalks, and blown out of them into a pail of boiling water, or gathered when feeding at night, by the help of a lamp or candle in a still night. The others must be either crushed in the leaf or syringed with clear lime water. Red spider may be kept under by severe syringings with clear water every evening till they are extirpated. A constant warfare must be kept up with these insidious enemies, or the cultivator will be disappointed in his hopes of fine blooms, and his Roses will suffer considerably by their depredations.

T. Appleby.

(*To be continued.*)

TO CORRESPONDENTS.

Evergreen Trees (*A Young Gardener*).—The best book for furnishing you with a description and figures of evergreens is Loudon's "Encyclopædia of Trees and Shrubs." There is no such book devoted exclusively to evergreens.

Vine Leaves and Shoots (*N. T.*).—Two leaves should be left beyond the bunch on each shoot. Never mind their interposing between the glass and the bunch. Light is not so important to the Grapes, as it is to the leaves. Shorten all barren shoots to two joints, or to three joints if very strong; and when secondary shoots appear, stop these at once, leaving of each only one leaf.

Plants for the Back of a Greenhouse (*A Subscriber*).—We presume you have means of planting in a border, and taking the stems between the shelf and the wall; or do you mean to grow in pots or boxes set on the shelf? This should have been stated. Nothing would look better than Camellias in such positions; and the *Acacia armata* might be placed at the end. It would be a beautiful green all the season, and in spring a golden yellow. If you prefer variety, then for the twenty feet south we would select *Habrothamnus elegans*, *Mandevilla suaveolens*, *Jasminum grandiflorum*, *Kennedya Marryattæ*, *Passiflora cærulea*, and *P. cærulea racemosa*. For the end we would choose *Jasminum revolutum* and *Heliotropium Peruvianum*. Before these covered the wall you might have temporary plants in pots of Fuchsias, Giant Geraniums, scarlet, *Cobæa scandens*, &c. Or such a position would be a rare one for Tea Roses, if the heat is not greater than what is stated. They would bloom such as they can hardly do in pots or in the open air.

Salterton will be attended to ere long.

Geranium Leaves in Greenhouse Becoming Yellow (*Flora*).—If free from insects, there can be no question that watering has been neglected. There are no surer telltales than Geraniums, or rather Pelargoniums of the Florist and Fancy kinds. Neglect watering them when dry once, and in revenge they will give you a ring of blanched and yellow leaves, though these may not show for a day or two afterwards. Neglect them a second time, and they will present you with another batch of withered leaves. It is vain to remonstrate or urge that the water-pail was duly applied. In such circumstances we would pay more attention to our eyesight than folios of contradictory evidence.

Cinerarias Getting Unhealthy (*Julia*).—If in a common greenhouse, it is difficult to keep them nice after this season. The only chance is a house facing the north, or in a place where they can be kept shaded and cool, but have abundance of air. The plants will not stand the sun beating fiercely on their pots.

Name of Grass (*C. Barnes*).—It is the Sheep's Fescue (*Festuca ovina*). Messrs. Lawson include it as a principal lawn Grass for soils, whether light, medium, or heavy. We can answer for its being beautifully verdant all the year upon a very light but fertile soil. Sinclair, in his "Hortus Gramineus Woburnensis," says it will not do for grass-plats, except on soils nearly as dry and light as that on which it is spontaneously produced.

Geraniums (*S. W———, Ticehurst*).—All in your list are common varieties.

Marie Louise Pear Leaves Diseased (*Clericus Nottinghamiensis*).—The leaf-stalks are gangrened; but whence this arises we can only surmise, not knowing any of the attendant circumstances of soil, &c. It may have been caused by violent changes of temperature, or by the roots having descended into an ungenial subsoil. We would not recommend the leaves to be removed; but we would sustain the tree in vigour by giving it liquid manure, and we would mulch over the roots in dry weather during the summer. The Peach tree shoots dying, and having fruit without leaves beyond, sustains the surmise that the roots of both trees have descended into an ungenial subsoil. If so, cut away the descending roots, and promote the formation of surface-roots by manuring and mulching. On no account let the surface be dug about the trees; it destroys the upper tiers of roots, which are the most valuable.

Gishurst Compound (*K. J.*).—Gishurst Compound has been applied successfully to Vines for the cure of mildew. Begin with two ounces to the gallon of water, and repeat at intervals. The most effectual cure for mildew is a liberal application of sulphur.

Horticultural Society (*Rose*).—Ladies are admitted as Fellows to the Horticultural Society, and their privileges are the same as those of gentlemen. An annual subscription of two guineas gives the privilege of attending all meetings and exhibitions, voting on all questions brought before the meetings, and participating in the ballot for the distribution of seeds and plants. The four-guinea annual subscription, in addition to the above, entitles the Fellow to an ivory ticket, which is transferable, and to a larger participation in the distribution of seeds and plants. You need only write to the Secretary, Dr. Lindley, and request him to have you proposed.

Various (*J. O. G., Thurso*).—The name of the plant enclosed is *Saxifraga granulata flore pleno*. It is quite possible you are too far north for both of the varieties of Plums you mention; and they have become chilled with cold at the time of stoning. The one you call *Samson* is, in all probability, *Goliath*, a large, ovate, purple Plum, with downy shoots. The same is likely to be the case with *Jargonelle* Pear. It is too tender for your climate, for unless grown in a warm soil, it is sure to canker as yours does. The *Autumn Bergamot* and *Green Chisel*, both of which are much hardier, consequently succeed better.

Floor of a Conservatory (*An Amateur*).—We do not think it signifies whether you use boards or ornamental tiles. The boards will be more comfortable to walk on; but the tiles, if handsome, will look best. In either case the heating medium might be below if desirable. We have employed ornamental tiles from Poole, in Dorset.

Weed on a Lawn (*Salterton*).—Your plant is a common weed in all parts of Great Britain and Ireland, and is called *Sagina apetala*. It looks very much like a *Spergula pilifera*—that is, drawn up by close confinement or by heat. Curtis says this weed seeds more rapidly than any other.

Calceolaria (*Ashton*).—Your Calceolaria is a very large and pretty variety, but we do not think it differs from several others already grown. The fact is, Calceolarias of first-rate merit may now be raised so freely from well-selected seed, that they have come to be regarded as little else than greenhouse biennials.

Names of Ferns (*H. H., Bolton-le-moors*).—Your two Ferns are, no doubt, very elegant sports; and if they acquire tolerable size, of which the scraps sent do not enable us to judge, they must be very handsome, as all well-crested Ferns are. From the size and form of their parts they appear to belong to *Gymnogramma sulphurea*, but are paler-coloured, as if intermediate between that and *G. Peruviana*. You should send a good plant to the Floral Committee of the Horticultural Society of London, where its merits would be thoroughly determined. The next meeting will take place on June 14th, at 8, St. Martin's Place, Trafalgar Square. We cannot judge of the comparative merits of the two from the fragmentary specimens you have sent. (*Alethea*).—One of the larger forms of Lady Fern, *Athyrium filix-fœmina*, var. *incisum*. (*Truth*).—Apparently yours is a point of a frond of *Lastræa dilatata*, var. *tanacetifolia*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

June 12th. Essex (Saffron Walden). *Sec.*, Mr. Robert Emson, Slough House, Halstead, Essex. Entries close June 1st.

June 20th. Thorne. *Sec.*, Mr. Joseph Richardson.

June 29th. Driffield. *Sec.*, Mr. R. Davison. Entries close June 23rd.

June 29th and 30th, July 2nd and 3rd. Sheffield. *Sec.*, Mr. W. H. Dawson, Sheffield. Entries close June 14th.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

July 19th. Prescot. *Sec.*, Mr. J. Beesley. Entries close July 7.

August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

UTILITY OF EXHIBITIONS.

When a man throws himself with ardour into a pursuit it is not always just to call it a mania. He is not of necessity mad. We were amused during the high winds we have had lately by watching the anxiety of men who were sailing their little boats on a canal: we have often wandered about the Serpentine for hours watching the same sport. These boats are viewed with an eye as critical, and scanned as closely as are those larger ones that compete for the golden vase by running round the Nab, or to the Nore and back. We sympathise heartily with the struggling gardeners who are confined to a few pots, or to the leads, or to the flat roof. A friend of ours took a prize at a large Show with flowers grown upon a house-top; and an enthusiastic man in our immediate neighbourhood is well repaid for a *large* outlay by being able to run up-stairs commonly and cut a cucumber, and now and then varying the exploit by substituting a bunch of ripe grapes. The truth is, every man must have a pursuit or a hobby. China, pictures, books, articles of vertû, autographs, are all fancies, and all called manias; but they are not. It is neces-

sary amateurs of such things should exist: they inculcate taste; they help to advance civilisation; they are the missionaries of refinement. Many important discoveries are due to them, and the knowledge of our day, the sciences of which we are so proud, are merely the results of the combined and concentrated knowledge of men who have been deemed, if not maniacs, at least enthusiasts in their day. Except in pursuit of trade, we think the popular estimate of the Dutch character is one from which anything like enthusiasm is excluded; yet these solid business men are maniacs in tulips. It is, then, part of every man's nature to have a hobby; and, in most instances, he is doing well and rightly when he follows it, provided he do so reasonably. With the hobby, however, there comes the desire to excel, and excellence can only be proved or settled by competition and by the judgment of acknowledged authorities.

This is no longer confined to individuals or to private life. The Great Exhibition of 1851, and the numerous meetings of a similar character that we have had since, are all competitions; and not only the gigantic and almost omnipotent steam-engine, but the wooden shaving covered with blue paper which holds the farthing's worth of lucifer matches, has effigies of medals and crowned heads indicative of the triumphs achieved at the peaceful tournaments. No man would accept the best or most valuable thing of any kind if the gift were shackled with the condition that it should be hidden from public gaze. The men who were sailing their little cutters and schooners were enjoying their regatta themselves; and friends watched the craft as they toiled against the waves—they were competing. The flowers grown on the top of the house in London would have possessed no charm unless they had been shown; and the Hollander would hardly care for his tulips if he could not compare them with his neighbours.

If, then, they had no real utility, the love of competition would always insure duration and stability to Poultry Shows. But they have utility. We are in a position to assert, that so far as we can judge, there never was a time when poultry excited so much real interest as it does at present. It is followed as a hobby and as a business pursuit. From what we have learned, we believe in many counties it is receiving that support, at the hands of those engaged in agriculture, which it always deserved, but which has been but tardily granted. Shows are increasing in numbers; and those who from habit and position are enabled to judge, declare their conviction, that through their instrumentality a remarkable improvement has taken place in the size and quality of poultry now taken to the country markets. Gentlemen are also coming forward with special prizes; and at the Summer Exhibition of the Crystal Palace, Mr. Kerr, of Worcester, has intimated his intention of giving a handsome china vase for the best pen of White Dorkings. If it be like that gained by the Hon. W. W. Vernon, at Worcester, in October last, it will, indeed, be a work of art; and we trust this public announcement will stimulate amateurs of this breed, so that the competition shall be a worthy one, both in quality and entries. The Show takes place on the 25th, 27th, 28th, and 29th August.

MALT-DUST AS POULTRY FOOD—CATARRHS.

I shall be much obliged by your informing me what your opinion is as to malt-dust as food for fowls, of course mixed with toppings, or oatmeal, or some other meal; and whether it is best soaked in water which has been poured on it boiling. This is how I manage it: I put about enough to last a week in an earthen jar with a lid, and pour boiling water in sufficient to cover it. In a few hours this is all absorbed, when I add more till it is moist enough to mix with other food without any more water being required. It makes my kitchen smell like a brewery for a time, and I have not found it turn sour or bad in any way. Fowls will not eat it alone, but are fond of it mixed with ground oats. My Spanish chickens appear to thrive on it.—A. H.

[We have never tried malt-dust in the way you mention; but we have fed hens with malt, and found them extremely fond of it. The result was very high condition; but after a few days the flavour had so entered into the system of the fowls, that the eggs tasted strongly of it. We consider it good food, but too stimulating. It would, we think, be proper feeding for the hen you mention. Too much pains cannot be taken in watching the first appearance of roup, and a neglected cold will unquestionably end in that disorder, as it will in consumption in the human being; but when the weather is as changeable as it has been of late, colds will be common. A stimulant will in most cases work a cure. The best we know of is stale bread soaked in strong beer. As a rule, we should consider malt-dust too stimulating for food; but in very damp or cold weather, or when fowls are flagging, we should think it valuable.]

THE CANARY AND THE BRITISH FINCHES.

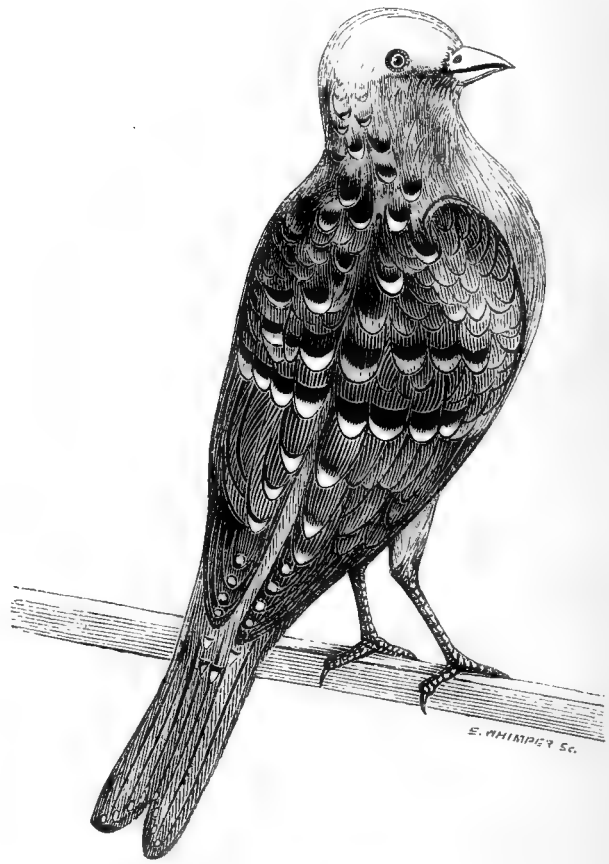
(*Continued from page* 122.)

Variety 4th.—The Lizard.

The Lizard Canary, so named from a fancied resemblance of its green plumage, spotted with yellow, to the colour of a lizard, is one of the oldest-established varieties of the domesticated Canary, and is held in high estimation by Canary fanciers generally.

They are stout, short, rather thick-set birds. In plumage, the top of the head in a line from the corners of the mouth, across the eyes, and evenly round the back of the head, must be clear yellow or mealy, and this is designated the cap. The rest of the plumage is green or grey, the feathers on the back, the wing-feathers, and the larger wing-coverts, as also the tail-feathers and the upper tail-covert feathers should have a spot of yellow, or mealy, at the extremity, which spots are called spangles.

The Lizard Canaries are divided by fanciers into three sub-varieties—viz., Golden-spangled, Silver-spangled, and Blue Lizards.



The Golden-spangled has much green in the ground colour, the spangles and cap being a rich yellow or Jonque. The brighter the green, and the more golden the colour of the cap and spangles, the more they are prized, provided they are evenly and regularly marked.

The Silver-spangled have a more sober colouring. The ground colour is grey, approaching that of the wild birds, and the cap and spangles are mealy or white. Where the ground colour is much grizzled with mealy, so as to present a general bluish-grey cast, they are named Blue Lizards. These three sub-varieties are, however, merely variations of the same breed, and not distinct sorts.

Mr. P. Warren gives the following twelve fancy points of the breed:—

"1st. Head. Large, wide, and flattish, the crown being as wide in front as behind.

"2nd. The Cap should terminate by a clean-edged horizontal line, coming to the beak in front to the back of the head behind.

"3rd. Neck. Short, thickly spangled, commencing with minute spangles from the back of the cap, and gradually increasing in size downwards towards the centre of the back.

"4th. The Back. Wide across, thickly and clearly spangled, the largest spangles being in the centre, and the size of the others gradually decreasing from thence towards the sides, neck, and upper tail-coverts.

"5th. Wings. Pinion-feathers above the lesser covert-feathers. (This sentence seems to me not very clear, as he cannot mean the pinion-feathers, as they are included in the eighteen flight-feathers. I conclude he means the larger wing-coverts.) "Black in stalk, having distinct black ticks on the centre near the tips, encircled by dark green or grey, and fringed with orange or white according to the class. The eighteen flight feathers, black in stalk and web, the latter being fringed with yellow or buff.

"6th. Throat, breast and belly. Under surface from beak to tail clear yellow or buff.

"7th. Chest. Wide.

"8th. Body. The longer and larger the better.

"9th. Tail. Piped, black in stalk and web, the latter very slightly fringed with yellow or buff.

"10th. Legs and feet. Very dark, approaching to blackness.

"11th. Feather. Close, compact, entire, and not deficient or pied.

"12th. Colour. Rich in the Golden-spangled, the under flue or down feathers are blue black. The under flue in the Silver-spangled are dark grey. In the Golden-spangled the brighter and deeper the orange colour the better. In the Silver-spangled all the buff portions of the plumage should be the colour of new virgin silver."

After such an excellent description of the fancy points of the breed, but little remains to be added. At the Exhibition of birds at the Crystal Palace, Sydenham, in November, 1859, there were no less than thirty-six Lizard Canaries exhibited, but nearly all were very deficient in spangling, though good in many other respects; and I am of opinion that the breed might be much improved in this respect by a cross with a strong-coloured London Fancy bird.

In the above list of points, I perceive no notice is made of the spangles at the end of the wing and tail-feathers, an evident omission; and point the 6th, I think, gives the idea of too light a bird. I would say, under surface from beak to tail, clear greenish-yellow, or mealy tinged with grey; for if the birds are bred too light in body, they will soon be undistinguishable from the London Fancy.—B. P. Brent.

(*To be continued.*)

SITTING NESTS.

In page 46 of this volume, No. 603, you inserted some remarks of mine on sitting nests. "The proof of the pudding is in the eating;" and these do not seem to succeed, and I have been obliged to give them up.

When I removed the hens to the sitting-house, which I did late in the evening, they seemed generally uneasy at first, at the change of locality, not finding their way back readily to their own nest, and mistaking another nest for their own, &c. Then, again, they seemed to want a little run in the morning for ten minutes when they feed, and I have no run attached to the out-house I used as a sitting-house, which is at a distance from the yard.

As these objections would seem to tell against the whole system of removing hens to a sitting-house which you advocate in your pages, I should be much obliged to you for a few remarks, point out the fault of my arrangement.

I observe in the "Poultry Book for the Many," that the sitting-house is within the house for hens and chickens; but I cannot make out whether the communication with the yard is *open* at all times.

I need hardly remark, that farmers' wives (who generally succeed pretty well with chickens), have no sitting-house.

The subject is worth inquiry, for really it is quite amusing to see how a hen is sometimes persecuted in a populous hen-house. A peaceable man is no match against a club of quarrelsome ones; and a hen, whose great aim in life is to sit still for three weeks, is no match for a turbulent cock on one hand, and a persevering hen on the other, who is trying to squeeze her out of her nest that she may have the morbid pleasure of laying her own egg in the midst of it.—C. R.

[You say well, "the proof of the pudding is in the eating," and we will, therefore, answer your letter by telling you what we have successfully done this year. We are always experimentalists in poultry, and, therefore, this year determined every hen should sit in the same house. As it is not used for any other purpose, each was, of course, moved to it. Those that were very broody were put at once on nests which they could leave when they liked; those that were fickle and apparently dissatisfied with the change, were shut in some boxes we had made. They were about eighteen inches high, the same square, they had no bottoms, and the tops and fronts were of wire-work. Some straw was put in them, and a turf, and the eggs placed thereon. The hen would look shy for a time, but she always ended by settling down quietly. No other fowls had access to this house which was tenanted by sitters. The middle of it was covered with loose, clean gravel and sand, and there were meal and water to be had always by the hens that could get out at will, the uncertain ones were taken off every morning and replaced. We spoiled only one nest of eggs. This sitting-house is away from the roosting-place.

It is true, farmers' wives have no sitting-house, and it is, perhaps, all the better for the fowls that they have not; but, it must be borne in mind, they have a hundred comfortable places for a sitting-hen, that they have not who have no farm-buildings. It is essential that sitting-hens should have a place to themselves, and it should be away from the haunts of the fowls that are not so engaged.]

BATH AND WEST OF ENGLAND POULTRY SHOW.

This took place at Dorchester, on the 6th, 7th, and 8th inst. We will publish our comments next week.

The following prizes were awarded:—

Spanish.—First, Miss M. L. Rake, Brandon Hill, Bristol. Second, R. Wright, 2, Porter's Place, Holloway, London. Third, J. K. Fowler, Prebendal Farm, Aylesbury, Bucks. Highly Commended, J. Langdon, Greenhill, Sherborne, Dorset.

Dorking (Coloured or White).—First, The Most Hon. the Marchioness of Winchester, Amport St. Mary's, Andover, Hampshire. Second, C. H. Wakefield, Malvern Wells, Worcestershire. Third, Mrs. H. Fookes, Whitechurch, Blandford, Dorset. Highly Commended, The Most Hon. the Marchioness of Winchester; J. Beardmore, Uplands, near Fareham, Hampshire. Commended, G. Chadwin, Tollard Royal, Salisbury, Wilts.

Cochin-China (Cinnamon, Buff, or Lemon).—First, H. Tomlinson, Balsall Heath Road, Birmingham. Second and Third, Mrs. Fookes, Whitechurh, Blandford, Dorset. Highly Commended, W. Cannan, Adolphus Street, Bradford, Yorkshire.

Cochin-China (Brown, Partridge, and Grouse, White or Black).—First, B. J. Ford, Countess Weir, near Exeter. Second, Mrs. Fookes, Whitechurch, Blandford, Dorset. (Third prize withheld.)

Game (White and Piles, Blacks and Brassy-winged).—First, W. Dawson, Selly Oak, Birmingham. Second, S. Matthew, Chilton Hall, Stowmarket, Suffolk. Third, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton, Devon.

Game (Black-breasted and other Reds).—First, W. D. Braginton, Knapp, Bideford, Devon. Second, S. Matthew, Chilton Hall, Stowmarket, Suffolk. Third, Rev G. S. Cruwys, Cruwys Morchard Court, Tiverton, Devon. Highly Commended, W. Rogers, Woodbridge, Suffolk.

Game (Duckwings, and other Greys and Blues).—First, H. E. Porter, Eland House, Hampstead. Second, J. Crane, Tolpuddle, Dorset. Third, W. Long, Belle Vue House, Devizes, Wiltshire. Highly Commended, J. T. Ensor, Dorchester; R. Tate, Driffield.

Malay.—First, A. G. Brooke, Cumberland Street, Woodbridge, Suffolk. Second and Third, W. Manfield, jun., Dorchester. Highly Commended, A. G. Brooke; C. Ballance, 5, Mount Terrace, Taunton, Somerset. Commended, W. Manfield, jun.

Hamburgh (Golden and Silver-pencilled).—First and Second, W. H. Kerr, London Road, Worcester. Third, The Most Hon. the Marchioness of Winchester, Amport St. Mary's, Andover, Hampshire. Highly Commended, W. H. Kerr.

Hamburgh (Golden and Silver-spangled).—First, W. R. Lane, Bristol Road, Birmingham. Second, W. C. Worrall, Rice House, Knotty Ash, near Liverpool. Third, W. R. Elliott, 5, Windsor Villas, Plymouth. Highly Commended, Mrs. Pettat, Ashe Rectory, near Micheldever, Hampshire.

Polands (Black with White Crests).—First and Third, T. P. Edwards, Lyndhurst, Hants. Second, W. Cannan, Adolphus Street, Bradford, Yorkshire.

Polands (Gold and Silver-spangled).—First, G. C. Adkins, the Lightwoods, near Birmingham. Second, W. Cannan, Adolphus Street, Bradford, Yorkshire. Third, Mrs. Mills, Bisterne Park, Ringwood, Hants. Commended, Mrs. Pettat, Ashe Rectory, near Micheldever, Hampshire.

Any variety not comprised in the before-mentioned Classes.—First, R. Everett, Gibraltar Cottage, Monmouth (Silkies). Second, W. Manfield, jun., Dorchester (Rumpless). Third, W. R. Lane, Bristol Road, Birmingham (Black Hamburghs). Highly Commended, J. H. Craigie, Woodlands, Chigwell, Essex (Brahma Pootra); J. K. Fowler, Prebendal

Farm, Aylesbury, Bucks (Brahma Pootra); Miss S. H. Northcote, Upton Pyne, near Exeter (White Spanish). Commended, B. Blay, 4, St. George's Square, Worcester (Andalusian); Mrs. Mills, Bisterne Park, Ringwood, Hants (White Poland). *Mrs. C. Hawkins, Martinstown, Dorset (Hybrids).

(* The Judges commend to the favourable notice of the Committee this truly remarkable pen of birds—a cross between the common fowl and guinea fowl—as no such hybrid has ever before been exhibited at any show of poultry in the United Kingdom, and most decidedly had *three* birds been exhibited, in compliance with the Rules of the Society, *instead of two*, the Judges would have in that case unanimously awarded them the first premium in this "any variety class.")

Spanish Chickens.—First, Second, and Third, J. R. Rodbard, Aldwick Court, Wrington, near Bristol, Somerset.

Dorking Chickens.—First, H. W. B. Berwick, Helmsley, near York. Second, C. H. Wakefield, Malvern Wells, Worcestershire. Third, G. Chadwin, Tollard Royal, Salisbury, Wilts. Highly Commended, Mrs. N. Grenville, Butleigh Court, Glastonbury, Somerset; Rev. J. G. A. Baker, the Vicarage, Old Warden, Biggleswade, Beds. Commended, Rev. J. G. A. Baker.

Game Chickens.—Second, R. R. Clayton, Hedgerley Park, Slough, Buckinghamshire. Third, W. Rogers, Woodbridge, Suffolk. (First prize withheld.)

Cochin-China Chickens.—First, Mrs. Fookes, Whitechurch, Blandford, Dorsetshire. Second, B. J. Ford, Countess Weir, near Exeter. Third, J. K. Fowler, Prebendal Farm, Aylesbury, Bucks. Commended, J. R. Rodbard, Aldwick Court, Wrington, near Bristol.

SWEEPSTAKES.

Game.—First, W. Long, Belle Vue House, Devizes, Wilts. Second, S. Matthew, Chilton Hall, Stowmarket, Suffolk. Third, A. Foster, North Petherton, near Bridgewater, Somerset. Highly Commended, Rev. T. L. Fellowes, Beighton Rectory, Acle, Norfolk; J. Fletcher, Stoneclough, near Manchester. Commended, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton, Devon.

Spanish.—First, J. R. Rodbard, Aldwick Court, Wrington, near Bristol. Second and Third, Miss M. L. Rake, Brandon Hill, Bristol.

Dorking.—First, The Most Hon. the Marchioness of Winchester, Amport St. Mary's, Andover. Second, G. Chadwin, Tollard Royal, Salisbury, Wilts. Third, R. Ambler, Stevenage, Herts.

Cochin-China.—First, H. Tomlinson, Balsall Heath Road, Birmingham. Second and Third, Mrs. H. Fookes, Whitechurch, Blandford, Dorset.

Malay.—First and Second, W. Manfield, junr., Dorchester. Third, H. Adney, Lympstone, Devon.

Bantam.—First, W. R. Lane, Bristol Road, Birmingham. Second, T. H. D. Bayley, Ickwell House, near Biggleswade, Beds. Third, J. Monsey, Thorn Lane, Norwick, Norfolk. Highly Commended, J. R. Rodbard, Aldwick Court, Wrington, near Bristol. Commended, Captain Beardmore, Uplands, near Fareham, Hampshire.

Bantams (Gold-laced).—First, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton, Devon. Second, T. H. D. Bayley, Ickwell House, Biggleswade, Bedford. Third, Rev. G. F. Hodson, North Petherton, Somerset.

Bantams (Silver-laced).—First, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton, Devon. Second, Rev. G. F. Hodson, North Petherton, Somerset. Third, T. H. D. Bayley, Ickwell House, Biggleswade, Bedford. Commended, R. Everett, Gibraltar Cottage, Monmouth.

*Bantams (White and Black).—First and Second, Rev. G. S. Cruwys, Cruwys Morchard Court, Tiverton, Devon. Third, G. C. Adkins, the Lightwoods, near Birmingham. Highly Commended, T. H. D. Bayley, Ickwell House, Biggleswade, Bedford. Commended, R. Tate, Driffield.

Bantams (of any other variety).—*First, Mrs. Pettat, Ashe Rectory, near Micheldever, Hampshire. Second, G. Chadwin, Tollard Royal, Salisbury, Wilts. Third, J. Monsey, Thorn Lane, Norwich, Norfolk. Highly Commended, W. R. Scott, St. Leonards, Exeter; T. H. D. Bayley, Ickwell House, Biggleswade, Bedford; W. H. Minty, Exeter, Devon, Commended, E. Colston, Roundway Park, Devizes, Wilts.

(* This prize is merged in accordance with the rules, on account of this pen winning the Silver Cup for the best pen of Bantams of any variety.)

Ducks (Aylesbury).—First and Second, J. K. Fowler, Prebendal Farm, Aylesbury, Bucks. Third, Mrs. Seamons, Hartwell, Aylesbury, Bucks. Commended, Mrs. Seamons.

Ducks (Rouen).—First, J. K. Fowler, Prebendal Farm. Aylesbury Bucks. Second, W. Manfield, jun., Dorchester. Third, Mrs. N. Grenville, Butleigh Court, Glastonbury, Somerset.

Ducks (any other variety).—First, T. H. D. Bayley, Ickwell House, Biggleswade, Beds (Grey Call). Second, G. S. Sainsbury, Rowde, near Devizes, Wiltshire (East Indian). Third, J. K. Fowler, Prebendal Farm, Aylesbury, Bucks (East Indian). Highly Commended, Captain Beardmore, Uplands, near Fareham, Hampshire (East Indian).

Geese.—First, W. Manfield, jun., Dorchester. Second, The Most Hon. the Marchioness of Winchester, Amport St. Mary's, Andover.

Turkeys.—First, Miss J. Millward, Newton St. Loe, Somerset. Second, The Most Hon. the Marchioness of Winchester, Amport St. Mary's.

Pea Fowls.—Second, The Most Hon. the Marchioness of Winchester, Amport St. Mary's, Andover. (No competition for first prize).

Guinea Fowls.—First, H. Adney, Lympstone, Devon. Second, W. D. Braginton, Knapp, Bideford, Devon. Highly Commended, W. Manfield, jun., Dorchester.

PIGEONS.

Carriers.—First, W. Cannan, Adolphus Street, Bradford, Yorkshire. Second, Master M. Rake, Brandon Hill, Bristol. Third, F. G. Stevens, Axminster, Devon.

Tumblers (Almond).—First and Third, Master M. Rake, Brandon Hill, Bristol. Second, F. G. Stevens, Axminster, Devon.

Tumblers (any other variety).—First, Master M. Rake, Brandon Hill, Bristol. Second and Third, F. G. Stevens, Axminster, Devon. Highly Commended, W. Cannan, Adolphus Street, Bradford, Yorkshire; H. Morris, Perry Vale, Forest Hill, Kent; F. G. Stevens.

Powters.—First, Master M. Rake, Brandon Hill, Bristol. Second, F. G. Stevens, Axminster, Devon. Third, W. Cannan, Adolphus Street, Bradford, Yorkshire.

Runts.—First, F. G. Stevens, Axminster, Devon. Second, W. Cannan, Adolphus Street, Bradford, Yorkshire.

Jacobins.—First, F. G. Stevens, Axminster, Devon. Second, H. Morris, Perry Vale, Forest Hill, Kent. Highly Commended, F. G. Stevens.

Fantails.—First, F. G. Stevens, Axminster, Devon. Second, H. Morris, Perry Vale, Forest Hill, Kent. Highly Commended, E. Archer, Westbourne Villa, Forest Hill, Kent. Commended, The Most Hon. the Marchioness of Winchester, Amport St. Mary's, Andover (Blue).

Owls.—First, Master M. Rake, Brandon Hill, Bristol. Second, W. Cannan, Adolphus Street, Bradford, Yorkshire. Highly Commended, H. Adney, Lympstone, Devon. Commended, H. Morris, Perry Vale, Forest Hill, Kent.

Trumpeters.—First, and Second, F. G. Stevens, Axminster, Devon. Highly Commended, Master M. Rake, Brandon Hill, Bristol.

Barbs.—First, Master M. Rake, Brandon Hill, Bristol. Second, F. G. Stevens, Axminster, Devon.

Turbits.—First, Master M. Rake, Brandon Hill, Bristol. Second, — Hellard, Fore Street, Taunton. Commended, G. Goore, 3, Aigburth Vale, Liverpool; W. Cannan, Adolphus Street, Bradford, Yorkshire.

Nuns.—First, Master M. Rake, Brandon Hill, Bristol. Second, F. G. Stevens, Axminster, Devon.

Dragoons.—First, W. S. Cooke, Stoke St. Mary, Taunton. Second, G. Goore, 3, Aigburth Vale, Liverpool. Highly Commended, F. G. Stevens, Axminster, Devon; — Hellard, Fore Street, Taunton, Somerset.

Blue Rocks.—First, F. G. Stevens, Axminster, Devon. (Second prize withheld.)

Archangels.—First, Master M. Rake, Brandon Hill, Bristol. Second, F. G. Stevens, Axminster, Devon.

Any other New or Distinct Variety.—First, F. G. Stevens, Axminster, Devon (Isabels from Prussia). Second, W. S. Cooke, Stoke St. Mary, Taunton (Black Magpies). Highly Commended, The Most Hon. the Marchioness of Winchester, Amport St. Mary's, Andover (Black and White Fantails); Master M. Rake, Brandon Hill, Bristol (Magpies). Commended, H. Morris, Perry Vale, Forest Hill, Kent; — Hellard, Fore Street, Taunton (Spots).

Judges.—Messrs. G. Andrews, of Dorchester; J. Cottle, of Cheltenham; and E. Hewitt, of Birmingham.

WHITE TRUMPETER PIGEONS.

I have a pair of white Trumpeters spotless, and seemingly well bred in every respect. The second pair of their young coming forward, I see are ticked in some places with black, and odd black feathers about their tails. Is this a proof of degeneracy or impurity of breed, and must I reject the young in consequence?—An Inquirer.

[White Trumpeters breeding some young ones slightly mottled does not indicate degeneracy or impurity of breed, but rather that the white breed has been some few generations back crossed with mottled birds.—B. P. B.]

HENS EATING THEIR EGGS.

Mr. S. Edwards Todd, of Lake Ridge, N. Y., communicates the following to the *Boston Cultivator*:—

"When hens have become addicted to the habit of eating their eggs, every preventive that I have ever read of utterly fails to save eggs just laid or older ones. I find that hens are far more liable to eat their eggs when the nests are in the hennery, on the floor, where they can look into them, than they are when nests are somewhere else. When they are kept in close quarters by cold and stormy weather, and the nests are where they can see the eggs, their appetites are so keen, even when fed with meat and other articles from the kitchen, that they will sieze an egg as soon as it is dropped. Many of my hens, during the past winter, would lay; and if no one were near to take their eggs immediately, they would eat them themselves.

"I discovered that in one nest, in a nail-keg, we always found eggs, while in other nests they had eaten them. Taking the hint from this fact, I nailed up a lot of nail-kegs about the hennery, about four feet from the floor, and filled them about half full of straw. These afforded a secret place for them to lay in, as when they were in the kegs other fowls could not see them; and as there was not sufficient room for them to stand in the nest and eat their eggs, and as they could not reach them while they stand on the side of the keg, if not more than half full, they will soon abandon the idea of trying to eat them. Any other vessel that is just large enough for hens to get into will be quite as effectual in saving eggs as a nail-keg. The idea is to have the nest just far enough below the top of the keg, so that they cannot stand on the edge and reach the eggs. If the nests are made in the bottom of such small kegs, they will find difficulty in getting out of them, and they will not go into them to lay."

[This experience of an American poultry cultivator is not to be turned from without a trial. Although our readers may not employ nail-kegs, yet they may have some narrow dark boxes raised about three feet from the ground of the hen-house, with

a separate ladder leading to each, and the roof of each box so low that the hen cannot stand upright in it. We hope some of our readers who have cannibal hens will try this arrangement and report the result to us.]

NATURAL HISTORY.

DOTTREL.

Dottrel are peculiar birds; they come in a day, and disappear in a day. At early dawn on a hill top a hundred may be found; half an hour afterwards there is not one. They are there again the next morning. While most of the birds are becoming scarce in England, these become more plentiful. We have now ten times as many as we had twenty years ago. They are generally seen for about three weeks or a month—this year for a few days only, but in great numbers. Have any of our correspondents noted it?

CONVERTING AN ATTIC INTO AN AVIARY.

I have a part of a store-room in the third story of a house partitioned off, which I wish to be converted into an aviary. Can you oblige me by giving me a few directions as to arranging it economically, and what kinds of birds I may put into it? It is fourteen feet long, eight feet wide, and eight feet high, and has a window facing the east.—Tony Lumpkin.

[In the first place, take out the window-sash, and fix in its place a wired frame, if projecting with a boarded top to throw off the rain so much the better. Next, see that the floor and skirting are properly secured against rats and mice. Then procure some long slips of deal, and with long screws fasten them to the walls all round the room, passing each screw through a small inch-square block of wood between the lath and the wall, so as to leave about an inch space between the laths and the wall. Two or three such laths may be fastened round the walls a foot or fifteen inches one above the other. Then procure some thick, shrubby bushes. I have found gorse or furze the best, and stick them thickly behind these laths, so as to make a thick hedge all round the room for the birds to breed in. Nail up also some branches of oak or white thorn for the birds to sit on, and cover the floor an inch thick with coarse sand, and the room is ready for the birds. Water they should have fresh and clean to drink, and also to bathe in. Good bright canary-seed in the hopper or meat-box; and this should be placed on a stand, to prevent mice getting at it if they should happen to get in. A handful of groundsel and chickweed may be thrown daily on the floor, and moss and cow-hair strewn about for building materials. While the birds are breeding they should daily have an egg boiled hard, cut up and mixed with bread-crumbs, provided it is home-baked bread, or else bun or biscuit. "Tony Lumpkin's" room would do well for one cock and four hen Canaries, or he might turn up a number of hen Canaries and any cock Finches he desired to breed Mules from. I have bred many in this way with varying success, and it is certainly the least troublesome. There are, however, three dangers—first, from mice; secondly, now and then a bird will take to egg-eating, and it is difficult to detect the culprit, which should be removed; and, thirdly, if insects infest the birds, they sometimes increase in such numbers as to kill the birds, or at least stop their breeding, and they cannot be got at so well as in cages.—B. P. Brent.]

BEE-DOMICILES.

Everything connected with the history and management of the bee seems, in all ages, to be prolific of controversy and contrariety of opinions. Even in recent years, and at the present time, when more enlightened views are entertained regarding its instinct and habits, professed apiarians still entertain the most conflicting opinions as to the kind of domicle, or hive, which is best suited to its successful and economical cultivation. It would not be difficult, perhaps, to account for this. Since the introduction of a more humane system of bee-management, and the consequent discarding from the apiary of the old cone-shaped straw-hive, apiarians have, in all quarters, been exercising their inventive faculties in endeavouring to introduce improvement after improvement, each upholding his own pet theory to the disparagement of every other; so that the tyro in bee economics is completely bewildered, and the more experienced cultivator even thrown into doubt and uncertainty.

All forms of bee-domiciles seem to have been tried, and all dimensions. The pyramidal form, the conical, oval, cylindrical, globular, cycloidal, hexagonal, octagonal, square, &c., each and all have had their advocates and partisans.

To discuss the merits and demerits of the various hives which have from time to time been prominently brought before the public by ancient and modern writers, from the patented bee-box of Geddes, in the reign of King Charles II., to Nutt's "Grand Pavilion of Nature," with its collateral additions, ventilators and thermometers; from the excavated trunks in the forest, and Warder's octagon, to the giant tub of Duhamel; and from the open hive of Martin, of Cobbeil, to that of the American one recently introduced into this country—to discuss these and fifty others would be a work both of impracticability and supererogation. I will not, therefore, pursue the varied chimeræ which have from time to time been broached, nor attempt to discuss the pretended advantages which each apiarian professor claims for his own invention. The experienced cultivator well knows, that a propitious season, a rich pasturage, a strong and vigorous colony, are the real elements of prosperity. There are the contingencies which sometimes crown with success a cherished theory, or a favourite mechanical contrivance; but these advantageous results are not because of such theory or contrivance, but in spite of it. They are simply adventitious; for the exterior circumstances, or contingencies, being altered, instead of complete success there will be utter disappointment and failure.

Such, however, would account for the origin of so many varieties of bee-domiciles, and for the alleged advantages which each artist claims for his peculiar invention. Far be it from me unduly to appreciate the many neat and ingenious contrivances which were exhibited—for instance, in the Crystal Palace in 1851. Such beautiful samples of mechanical skill are both pleasing and instructive to contemplate; but in estimating the value of any article, we must consider its usefulness. We must consider the *cui bono*—the end to be subserved; and if it can be truly said that bees may be as successfully cultivated, whether as regards increase in numbers or stores in a simple hive of a few shillings' purchase as in the most complicated and costly, then it is quite apparent that such elaborate arrangements and appliances are in themselves, and in that point of view, useless and valueless. In making this statement, however, I do not wish to deprive the amateur of gratifying his taste in any way he pleases, however costly. All I contend for is, that such complicated arrangements and appliances shall not be considered essential in any degree to the successful cultivation of the bee.

What then, it may be asked, are the principles which should guide the apiarian in the construction of his hives? My answer is, Simplicity and adaptation of means to the end desired. It will be well, no doubt, to ascertain what material and construction are best suited both for winter and summer domiciles, so that an equable temperature may be sustained as much as possible, and the inmates neither adversely affected by the heat of summer nor the cold of winter. Wood and straw are the materials generally used: of the two I think that straw, from its absorbent and non-conducting quanties, best suited to this climate, being less liable to be affected by atmospherical changes; but wood, on the other hand, from its applicability to various forms of construction, according to the taste and object of the apiarian, will always be pretty generally employed. It is quite clear, however, that to the ordinary cultivator, whose principal object is profit combined with pleasure, a simple, easily-managed hive is best; while to the naturalist and scientific inquirer such arrangements of construction must be sought for as will best attain the objects he has in view—namely, experiment and investigation. To the former class of apiarians I could recommend no better hive than the improved straw hive—cylindrical and flat-topped, having a central aperture for supering. This, I consider, on the whole, the most useful kind of hive for the cottager; as it is the cheapest, the most easily managed, the best adapted for swarming purposes, and also for the obtaining of the superabundant stores, by means of glass or straw supers. As to size, this must depend upon circumstances and locality, and the populousness of the colony to occupy it. An ordinary-sized hive may be reckoned about thirteen inches in diameter and eight inches in height, interior measure. The size of the supers will also be regulated according to season and circumstances. The kind of hives I reckon best for the naturalist, whose researches are directed to the instinct, habits, and operations of the bee, may be indicated from those I employ in my own apiary, of which I may now give a condensed account.

In addition, then, to the straw hive above alluded to, which I use for swarming and general purposes, I employ several other varieties of hives, principally for prosecuting the study of the bee, and for experimental purposes. Among these I mention chiefly a glass observatory-hive, a Huber leaf-hive, and a vertical frame-hive. The glass observatory is a hive which is constructed on the unicomb principle, and on a plan entirely of my own. It is triangular in form, having three wings containing a superficial area equal in extent to the natural requirements of an average colony; is capable of being revolved for facility of observation, and, consequently, is admirably adapted for studying the internal economy and operations of the bee. Each wing is encased by two framed sheets of glass hinged on the exterior pillar, and, consequently, access can be had to any part of the hive at pleasure; while the space between the glass is of sufficient width to admit only of one comb. These frames rest on a triangular board, to which they are attached, and in which apertures for access to the bees are made in the centre and underneath each wing. The centre of the floor-board is all scooped out to the depth of about half an inch, so as to embrace the whole area of a circle exterior to the apertures in the bottom of the hive; and the passage, or entrance for the bees by the floor-board, is sloped gradually outwards by a tunnel of sufficient width, so as to terminate in and constitute the usual doorway. This hive has an exterior covering of a warm material to provide for climatical changes, and is besides possessed of other little arrangements unnecessary to detail. It is, moreover, located in a bee-house which opens from behind. It is only by such a hive as this, which is constructed on the unicomb principle, that the internal operations of the whole community can be thoroughly observed and studied without the least inconvenience or annoyance either to the bees or the observer.

The Huber leaf-hive I also value highly, both for its general usefulness and its affording facilities of internal examination. This hive I have constructed with great care, and in accordance with the known principles which regulate the proceedings of the bee when left to itself; so that the combs are beautifully parallel to each other and at natural distances. This hive has eight frames, but it can be enlarged or diminished in size according to circumstances. The frames converge from eleven inches in width at top to ten inches at bottom, and are eleven inches high, all inside measure. They are hinged in front, and have hooks and eyes to keep them together behind. They are likewise grooved on both sides, and the interspaces at top are filled up by slips of glass.

The other hive—the vertical-frame hive—I introduced into my apiary several years ago, and is useful principally for experimental purposes. The principle is the same as adopted in De Beauvois' prize hive at the Exhibition in 1851, but is of a different construction. The frames are fitted in a wooden box, and the distances are apportioned with the same care as in the Huber hive. They are moveable, and can be drawn up and replaced at pleasure, and they fall into and are kept in their position by a simple interior arrangement. It is constructed like the Huber leaf-hive on the salient angle principle, the convergence being equal to one inch from top to bottom. The box itself is composed of two divisional parts, opening laterally at the very centre. Both sides are grooved, and it is hinged in front and kept together behind with hooks and eyes. It is unnecessary to enlarge on the uses of this hive. For the removal of brood or honeycomb, for artificial swarm-making, and other purposes, it will be at once seen that it is capable of being turned to good account in the apiary, both for economical and experimental purposes.

In these remarks I have made I have purposely refrained from dogmatising either as to form, size, or material. These are best ascertained by the experience of apiarians themselves, according to locality and circumstances. I have, however, clearly enough indicated, I think, my own views on the matter, and stated what I find from experience most suited to my own locality; but I believe that with some modifications the same might be found applicable to most parts of the country.

Bees can accommodate themselves sometimes to strange domiciles. We know that a lion's carcass, and an excavation in the rock, or the trunk of a tree, have afforded them, temporarily at least, a safe refuge. An apiarian friend of mine happening to have seven swarms in his apiary about the same time, the whole joined into one monster mass. Not having anything more suitable at hand, he lodged the united swarms in an empty water-barrel about five feet high by three feet in diameter. Unfortunately, however, this apiarian heptarchy was scarcely so enduring as the Saxon one of old, though the results were somewhat alike; for, by reason of internal discord, dissension, and defection, it gradually dwindled away until only one sovereign remained at the head of a still formidable population—the fortunate survivor of such a host of competitors.

The principal object I have had in view in making the remarks now made on bee-domiciles is to controvert the wide-spread errors on this subject; to disabuse the apiarian mind of the prevailing fallacy, that, in virtue of a particular invention, contrivance, or theory, bees can be forced, as it were, to augment their sweets, and to yield them up in increased abundance according to the mere whim or caprice of their owner. I have shown that while not undervalueing construction, and appreciating, as I do, those improvements which are in accordance with the instinct and habits of the bee, yet there are other elements exerting a weightier influence, and bringing about those results which no mere theoretical dogma can control, and no mere human ingenuity counteract. Experience has satisfied my own mind as to the truth of these observations, and I could wish to see them more acted upon by apiarians generally.—J. Lowe, *Edinburgh.*

ADDING A LIGURIAN QUEEN—DRONES PRECEDE SWARMING.

1. In depriving a hive of its queen in order to add an Italian queen, would it be necessary to cut away also the queen cells?

2. Do bees ever swarm before there are drones in the hive? and at what time is it usual for drones to make their appearance? —A Young Bee-keeper.

[1. It would certainly be advisable to deprive a stock of queen cells as well as of its queen before substituting a foreign sovereign; but we should prefer operating on a swarm, or on a stock which did not contemplate swarming, and in which therefore no queen cells in an advanced stage would be found.

2. Drones usually make their appearance in April or May, and it is generally considered that no eggs are laid in royal cells, and therefore no swarms can issue until they become numerous. "Early drones, early swarms," is an old and a true adage.]

WORKING BEES LAYING EGGS.

It was recently stated at a Society's Meeting, that there are sometimes fertile working bees in a hive. Can this be true?—*Kensington.*

[We hear that it was so mentioned, and as a new discovery, and as "remarkable;" but the fact was known to apiarians before the commencement of the present century. Huber, writing in 1791, speak of it as "The singular discovery of Riem," and confirms it by a series of decisive experiments. Dr. Bevan also mentions it in his work. M. Hermann ("Alp-bee," p. 19), notices it, and says a plurality of eggs are laid in the same cell by fertile workers.]

OUR LETTER BOX.

Diseased Pigeons.—"Since wet weather set in my Pigeons have a difficulty in breathing, and in a few days it kills them. I am told it is the roup. Can you or any of your correspondents tell me a cure, or what is best to give them? I have already lost two by it, and I am afraid I shall lose some more. Can you tell me if it is catching?"—A. Y.

[We do not know this disease, and shall be obliged by any information on the subject.]

Antwerp Carriers.—*Capercaillie* wrote to us some time since about these Pigeons. His wants, we hear, can now be supplied by T. Townley Parker, Esq., Adlington Hall, Chorley, Lancashire.

Food for Ducklings (*B. S. P.*).—All the information you ask for is contained in this extract from our "Poultry Book for the Many," which may be bought for 6*d.*:—"Ducks of all kinds should be kept in a house separate from other poultry, and with a brick floor to admit of frequent washing. Give them plenty of room. Boiled roots, mixed with a little barleymeal, is good food for them. Add a little milk when fattening them. Eleven eggs for a large Duck, and nine for a small Duck, are enough for them to sit upon. The eggs do not keep so well as those of the common hen, so sit them on the freshest. Make the nest on the ground, and in a damp place. The Duck requires to be fed every morning and evening whilst sitting. Let her have food and water near to the nest. Boiled but cold oatmeal porridge is the best food for Ducklings until they are ten days old; afterwards barleymeal, oats, and pollard, with plenty of green food. They are ready for table in eight or ten weeks if well fed. Never give them hard spring water, but water from a pond. They may be taken away from the Duck when three days old if they have a confined yard to be kept in, well supplied with water, and a dry, warm house to retire to, and if never allowed to come out of that house before nine o'clock in the morning. The tails of young Ducklings need not be clipped off." Remember, the Ducklings must be kept very frequently fed,—neglect for two or three hours will render of no avail the previous care of weeks. To make them grow fast, keep them warm and with no more water than is in a very shallow pan. Adult Ducks may be fed upon any animal or vegetable food that will cook into a soft state.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JUNE 19—25, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
19	Tu	Plantagos, several.	30.054—29.929	74—56	N.W.	.01	44 af 3	18 af 8	sets		1 8	171
20	W	Queen Victoria Accession.	29.850—29.819	66—41	W.	.13	44 3	18 8	40 a 9	1	1 16	172
21	Th	Queen Victoria Proclaimed.	29.928—29.858	76—55	N.W.	—	44 3	18 8	7 10	2	1 29	173
22	F	Sun's declin. 23° 27′ N.	30.003—29.898	74—52	S.W.	—	45 3	19 8	29 10	3	1 42	174
23	S	Epimedium alpinum.	30.014—29.988	69—41	S.W.	—	45 3	19 8	47 10	4	1 55	175
24	Sun	3 Sun. after Trin. [Midsummer	30.083—30.026	72—34	S.W.	—	45 3	19 8	3 11	5	2 8	176
25	M	Centunculus minimus. [Day.	30.001—29.836	78—53	S.W.	—	46 3	19 8	17 11	6	2 21	177

Meteorology of the Week.—At Chiswick, from observations during the last thirty-three years, the average highest and lowest temperatures of these days are 73° and 50° respectively. The greatest heat, 93°, occurred on the 22nd, in 1846; and the lowest cold, 30°, on the 20th, in 1855. During the period 134 days were fine, and on 97 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Asparagus: as late and close cutting is one of the principal causes of weak grass, it is advisable to discontinue the cutting, to increase the strength of the plant for next year. *Celery,* continue to plant successional crops into trenches; take up the plants with as much earth about the roots as possible, and do not shorten any of the leaves. The earliest crops to have the earth loosened about their roots, as the late heavy rains may have battered them hard. *Cucumbers,* keep up the bottom heat by fresh linings if fine fruit is desired, and to be covered with mats at night, as they are now sometimes unseasonably cold. If the plants have been bearing for some time, and the shoots are rather out of order, cut them back, add two or three inches of fresh soil, and give them a good watering; to be kept close and shaded for a few days, and then to give them a gentle syringing every fine afternoon with the usual treatment; they will produce a second crop. *Endive,* sow for the main autumn crop. Plant out a few of the early sowing. *Herbs,* the best time to cut them for drying is just as they are coming into flower. *Lettuce,* keep up a regular supply tied up for blanching. Make another sowing in drills where they are to remain. *Potatoes,* earth up the main crops; keep the ground between the rows loose. *Spinach,* sow a few rows for succession.

FLOWER GARDEN.

Make good all failures in the beds, and fill up all vacancies in the borders. When pegging down the plants place them as much as possible with their heads to the north, when the influence of the sun will draw them upright more effectually than if they had been pegged out at random. *Carnations,* tie them carefully as they advance in growth. Seedlings to be pricked out into beds when they have attained sufficient size. *Pansies,* continue to put in cuttings; nice small shoots taken from near the roots succeed best as cuttings and as plants. *Tulips,* break off the capsules when seed is not required; it will throw additional strength into the bulb. Tie up Pæonies, Rockets, Veronicas, Lychnis, and other such herbaceous plants that are tall or showing flowers, to prevent them from being injured by the wind. Plant out large specimens of Fuchsias and Scarlet Geraniums on lawns; to be well staked. Sow Ten-week Stocks, Mignonette, and a few of the best annuals for autumn display.

FRUIT GARDEN.

Continue to nail in the leading shoots of Apricot, Nectarine, Peach, and other such *wall trees,* taking care to allow plenty of room in the shreds. Apple and Pear trees are about this time subject to the ravages of caterpillars—those of the Lackey Moth (*Clisiocampa neustria*)—they are now easily destroyed whilst they remain in groups or clusters; but after their dispersion over the tree in all directions, their extirpation amounts almost to an impossibility. *Thin and top* the shoots of Currants and Gooseberries. A few leading shoots may be allowed a fortnight or three weeks longer before stopping them.

STOVE.

As the weather still continues changeable, be careful that the young shoots are not checked or injured by cold draughts, or by sudden bursts of scorching sunshine. Repot plants that may again require it. Attend to the training and stopping of such as are making rapid growth. Keep up a supply of moisture by frequent syringings. When the Orchids are making vigorous growth never allow the young and succulent roots to perish for want of water. Some of the free-growing kinds will be benefited by more pot room, and those on blocks of wood, or in wire baskets, to have a little additional moss applied over the roots. As the Stanhopeas are now coming into bloom a careful examination is necessary to prevent injury to the buds by coming in contact with the sides of the baskets.

GREENHOUSE AND CONSERVATORY.

Keep the greenhouse moist by frequent syringings; turn the plants round from time to time that they may not become one-sided, and allow them to have plenty of room on all sides. Frequent stoppings will be necessary for Corræas, Chorozemas, Epacrises, Ericas, Pimeleas, Polygalas, Leschenaultias, &c., to equalise the sap and to encourage the lower parts of the plants. A rapid and sturdy growth to be encouraged by shifting them as they may require it into three parts fibrous heathy soil to one part of turfy loam, and by attention to watering and liberal airing.

PITS AND FRAMES.

Renew the linings, if required, that the plants may not receive a check. W. Keane.

ESTABLISHING A LAWN WITH SPERGULA PILIFERA.

Now as to the best way of managing *Spergula pilifera* for getting up a stock of it to cover a lawn with, and also how to plant a lawn with it when you have a sufficient number of plants to do so, and how to manage the lawn after it is planted, or sown with Spergula seeds.

There is nothing on our hands, just at present, which requires the proof of the pudding so much as the proper management of Spergulas for lawns. If there is blood enough in the new Horticultural Society to raise the wind for me, and to embrace my offer to see an acre of the new garden at Kensington Gore covered with Spergula, I must, of necessity, make myself master of the subject to save my own pocket; for, of course, if the thing should fail, I should, for conscience's sake, be bound to be at the sole expense of getting as good a covering of grass for that acre as was on the rest of the new lawn. But what would be a much greater inducement for me, would be to guard against making a fool of myself, at my time of life, by a forward experiment on a subject of which we have, as yet, no practical, or rather no professional acquaintance.

I shall relate, as simply as if it were addressed to school children, the very way I mean to go to work on that acre, provided the money is first in one hand, and the assent of the Council in the other. My time is of far more value to me than money is to some people, and I shall give full two years' superintendence to that acre, so that I shall have a deeper stake in it that way than the £5 bouncers, and then if it should fail all the cost will fall upon me, which I shall not shrink from; and that part in prospective is really a serious question to a man who is not much encumbered with money.

There is one advantage in my favour over young volunteers. In my younger days it was a very difficult thing to get a respectable lawn, and I had seen such contrivances resorted to in order to keep up respectable appearances, as no one of the volunteers could even think of in these days of fast things. It was a general practice before selected grass seeds could be had to sow lawns with, to *inoculate* the ground with small pieces of turf, as it was called. By that method the quantity of turf that would cover only one-quarter of an acre, was sufficient to inoculate four acres of lawn, the turf being divided into small squares of from four to six inches on the side. The ground had to be kept clean from weeds the first two seasons, and by the end of the third year, after inoculation, the lawn was thickly covered from the spreading growth of the inoculating pieces of turf. The last piece of ground which I have seen thus lawned was at Ledbury, in Herefordshire, in 1833—a new piece of ground taken to the lawn from the deer park belonging to the late and present Messrs. Biddulph, of the banking firm of Biddulph, Cocks, and Biddulph, Charing Cross. The gardener who did that inoculation was sent there by Dr. Lindley, from the garden at Chiswick. The proper seeds for a lawn, at that time, if they could be had, would cost about six or seven times as much as the inoculation, for I recollect very well being consulted on the two ways; but as far as I can recollect, the seeds were then just as high in price as that of *Spergula pilifera* is at the present moment. There was a fundemental error, however, in all the inoculation that I have seen performed; but before an improved form of inoculation was decided on, the Messrs. Lawson, of Edinburgh, had rendered inoculation useless, or very expensive, as compared with their selections of grass seeds for a quicker and a much cheaper covering.

After going round the circle ever so many times, and after extending our lawns many times more since that day, here we are again just at the point we first started from. The whole of the garden at Forest Hill has been nearly inoculated; the next-door neighbour has his part of the "coach-ring" inoculated; a lady in the neighbourhood has had a steep bank inoculated this season; and Mr. Summers has inoculated ever so much of his Crystal Palace Nursery, and a corner in the Crystal Palace grounds, all of which I have seen with my own eyes this last month of May; and I was very much amused to find that all that inoculation was performed with the identical error of the elder school of turf-cuttings. But the error is most serious now at the price of Spergula, as you must go to just double the expense for plants, or else keep making a lawn of it one more season in hand.

In that year of 1833 the Doctor's man and his foreman, also from Chiswick Garden, with your humble servant, discovered the error of the inoculation before the end of June; the pieces were as near six inches square as they could be cut, and the distances were nine inches apart every way. The Spergula is now done on the same principle; good tufts of it being set, or planted, six inches apart. Both systems are fundamentally wrong. The increase, or growth, for extension to cover the spaces is only from the outside of the pieces of turf, and from the outer edges of the tufts of Spergula; the centre of the pieces and of the tufts is at a dead standstill the whole time your work is in progress. You get no increase from the increased sizes of your pieces; you only cover so much surface at first. It is self-evident, therefore, that if the pieces of turf were cut three inches square, instead of six inches, the area of increase would be nearly doubled; and the same rule applies with more force to all inoculations with Spergula—the larger the pieces you plant, the less growth or increase you obtain, as compared with much closer planting with the smallest pieces that can well be handled for transplanting. Now, if you can thus perceive the drift of my meaning, you will hold with me in my way of planting the acre for the Horticultural Society as a fair specimen for the three kingdoms, and for all foreigners from all parts of the temperate regions of the earth to judge by. If I fail with it, little harm is done, I shall be just as well as I was before the trial; but if I succeed, the thing will be the greatest boon to gardening which any one age since the flood has supplied—that I am quite certain about. The next in degree to it was the discovery of the sexual system in plants.

Keeping the lawns is now, and always has been, the greatest expense in gardening. When the whole of what is under the mowing machines is covered with Spergula, one man will do, at his ease, the work of forty or fifty hard-worked men. Add that power, or the one-quarter of it, to the other departments of the garden, and the effect will be more than we can calculate. But say that you are to give ninety-nine gardeners out of every hundred, ten men to work under them, for every man they now employ, and that would not be more than one-half of the power which would be given to them by covering all their grass with Spergula. There is not a good gardener anywhere who could not tell you, and prove it, that gardening could be improved to double what it is now by adding one-third more to the labour of the garden. Men of reflection see that clear enough; but this monstrous expense of mowing and sweeping, and the wear and tear of mens' bodies, sweating away their prime animal spirits in work which has no other or higher results than the daily rounds of the housemaid; and as it is the very opposite of a blessing to the men, so it is the bottomless pit of garden expenses. The easiest way in the world to get up out of this is to sanction and practise the use of a very superior substitute for grass which will never require mowing.

The way that I would go to work on the acre at Kensington Gore would be this: Have as many plants in 60-pots, the same size as you can buy at present, as would engage the planters a day or two, turn them out of the pots, and divide the balls into twelve pieces, or more if I could. The present method is to divide such plants into four or six parts, but that is too extravagant on the Rob Roy scale, as the centres of such large pieces must necessarily lie idle, the growth being only from the outsides of the pieces, as in inoculating with pieces of turf. Six inches apart are the present distance at which the pieces are planted; but my distances will only be three inches every way, and yet the same number of pots will cover the same quantity of ground as at present, and I shall have more than one-third extra growing surface. The plants will be watered as the planting proceeds; and when the surface is dry, a man will walk over each row "heel and toe" fashion, to press the plants firmly to the soil. If the weather is dry after the planting is finished, the whole acre will be watered from a garden-engine three times a-week for the first month. The whole will be rolled once a-week during that month when the surface is dry enough to bear the roller, and twice a-month for the rest of that summer. The ground will be made as a flower-bed the first and second season; and after that it will want nothing more done to it until the youngest of the life members of the Horticultural Society has grandchildren to play about on the velvety surface. I mean nothing more than sweeping and rolling, or pulling up a weed

here and there. But if the land is free from perennial weeds at the time of planting, there will be no other weeds to pull up. No annual weed can have a chance of establishing a footing in such a matted close surface; and there is not a carpet in Buckingham Palace that is more comfortable to tread upon than the whole of this acre will be after the end of the second season from the planting. In the month of July in each year the whole of that acre will be as uniformly white as the cloth for the dining-table, from the myriads of minute white starry blossoms. Every tiny flower will give a tinier seed-pod;—and there will be a clause in the agreement between me and the Council of the Society, that every seed-pod on that acre shall be gathered, harvested, and made up into small packets for the use of the Fellows of the Society; but that such Fellows as shall assist me with the necessary funds to secure that result shall have the first run of the seeds.

And here I shall assume the spirit of prophecy, and predict that by that time there will be a greater demand for that one kind of home-grown seed among the Fellows of the Society than for all the foreign seeds which all the foreign collectors, with all the Spanish in Madrid, and all the Portuguese in Lisbon in their heads, can send home from all parts of the known world. So you see, without any of the Garibaldi spirit, that I am perfectly in earnest in this matter; but give me the money and you may have my head, and the shoulders also, if I do not do it better than I say. I have no fear about the pluck of the men who raised the wind for the new Garden at Kensington Gore. They have margin enough left to hand me over that acre, if I had the wind in my own sails.

It is too soon yet to talk of growing lawns of Spergula from seed. When that day comes, the same method as for the White Clover, in laying down lawns, will be adopted, or something very near it. But with the little packets of seeds of Spergula which can be had at present, the best plan is to sow them in good, clean soil in the kitchen garden, to sow very thinly, and to let the plants run as much as possible; but before sowing tread the whole surface of the bed as you would an alley, along the side of a wall, or at the back of a border; after hard treading, rake the surface over, just to form a bed for the seeds, and no more. After sowing and raking again, to cover the seeds, beat down the surface gently with the back of a spade. Of course, if the weather comes very dry, a watering occasionally will assist the spread of the seedlings; but they will do without watering better than any other seedlings of the same size, and tramp on the bed, or roll it occasionally through the summer and early in the spring. When the surface is quite dry, roll it in earnest, or as often as you can. The more it is rolled in the spring, in nursery-beds, the better; and in loose sandy soil, without much rolling, to attempt nursing it, is just so much of "love's labour lost." Nevertheless, when a lawn of it is three or four years old and quite consolidated, as one may say, two rollings will suffice for it in the twelve months, and these two in the spring.

From cuttings Spergula comes faster than Verbenas, and Mr. Kidd's saucers of sand in water are as good a way of rooting it as any other. Seedlings and plants from cuttings require exactly the same kind of management after they are once planted out. I would plant both seedlings and plants from cuttings singly, and six inches apart every way, and in two years they will be fit to divide into pieces; these pieces to be again planted six inches apart every time till you come to plant out on the lawn, then plant at three inches. It is folly, and no sign of professional skill, to disturb a seedling or plants from cuttings during the first two years, or to plant them out on purpose to lawn with. Everything in our way wants nursing, and to nurse in a private corner is so much more to the purpose than to nurse out in the face of day, and in the face of folly and foolish people, who will never cease croaking at the length of time your lawn is filling up; and there is not yet sufficient seeds to be had to use it as Clover seed.

Anything that would assist Clover and Rye-Grass on a farm would tell equally on the seed-beds and on the new-planted lawns of Spergulas. As their family affects calcareous formations, probably the superphosphate of lime would tell on them better than the muck-pie. But I must hand over the farming part of the scheme to Mr. Robson, who is a perfect model of a practical farming writer; and I shall assume that Spergula is like my seedling Geraniums, and would be set a-racing by a good mixing in the soil and mulching with the Cocoa-nut refuse, which, I was pleased to hear last week, got down as far as below Bristol. The kind clergyman who lent me his Gilbert's "Vade Mecum" from that quarter, tells me that he "makes great use of the Cocoa-nut refuse at the recommendation of The Cottage Gardener. Its uses are endless, and for Ferns there is nothing better, in my opinion." But for fear of the editorial rod, I must again put off a heap of useful windfalls. D. Beaton.

CAPE BULBS—GAZANIA SPLENDENS—MIMULUSES.

Please let me know the proper treatment of the following bulbs, and whether they are hardy or tender:—*Babiana villosa*, *Cummingia trimaculata*, and *Trichonema speciosa*. I have them plunged in pots in a cool frame partly shaded by trees; but their foliage is looking yellow and stunted.

Will the new bedder *Gazania splendens* thrive if plunged in a border in a pot like a Geranium, or would you advise turning it out of the pot? Would the old plant do equally well for bedding another season, or do autumn-struck cuttings do better as the Calceolaria? and will it, like the above-named plant, keep better in winter by being cool and moist, or will Verbena treatment suit it better?

Please let me know the names of a few of the best dwarf Mimuluses. I grow *Scarboro' Defiance*, *Général Péllisier*, *General Williams*, and *Queen Victoria*. They are looking very beautiful just now, but I wish for a greater variety.—An Amateur.

[Your Cape bulbs are merely going to rest for the season. Allow them to get quite dry, and keep them so till the middle of September, then shake them out, and repot them in nothing but sandy peat, and that not very fine.

Gazania splendens would be strangled if planted out in pots; and the old plants, like old Heliotrope plants, are not worth taking up. It roots so readily from cuttings in the autumn, and they are among the easiest of all things to keep over the winter after the manner of Verbenas; but not requiring a tenth part of the fuss they need, and must have, to keep them from insects and mildew.

The following are six good kinds of Mimuluses; but, like Cinerarias and herbaceous Calceolarias, by far the best plan is to sow a packet of seeds of them yearly from some well-known nursery where they are done well:—*Victor Emanuel*, *Therese Mianollo*, *La Fin du Monde*, *Comite Fatal*, *Curiosa*, and *Magniflora*.]

OUR FAMILY POMOLOGICAL SOCIETY.

In communicating with The Cottage Gardener last year, it was our expectation to present quite a lengthy—we flattered ourselves even a valuable—report of our proceedings during the twelve months ending June, 1860. We were over-sanguine. The severe frosts of the two last nights of March entirely blighted the prospects of our dwarf Pear trees, leaving literally not a single fruit upon nearly seventy pyramids, the majority of which had been crowded with blossom-buds. As, however, even our hardy thirty-year-old-standards only saved a sprinkling on the sheltered side of each, we were not surprised that our unprotected nursery fared so badly. To make the matter worse, a heavy hailstorm visited this district of Cheshire in the middle of July, thinning out the poor crop of Apples the frost had left us. Even of the [illegible] we harvested in October, we did not observe one upon which hailstones had not left their mark, causing each sort to [illegible] month or six weeks before its time, and then remaining [illegible] fection little more than a few days. The fruit

scarcely two-thirds their usual size. The attention of our Society, therefore, has been directed to other matters than the qualities of fruits and their periods of perfection; and in two of those we seek the co-operation of such as think our inquiries promise to be of value.

Being tenants only of our garden, and all of us having other business to attend to, the labour of root-pruning several hundred pyramids and bushes is a serious matter in the short days of winter, when all the time we can spare for the task are a few minutes morning and evening, with an occasional Saturday afternoon. This has led us to inquire how root-pruning may be accomplished effectually with the least labour. As to implements, our experiments so far seem to point to some modification of the common handsaw as the best suited for the work wherever the ground is tolerably free from stones, the blade cutting its way through soil and roots surprisingly. For lateral growth we cannot conceive anything better. The tap roots, however, were our difficulty; and it was not till our winter work was over that we saw our way through them—too late, of course, to prove our plans this season. Our idea is to plant each pyramid or bush over a large slate, say two feet square, sunk into the ground fifteen to eighteen inches deep. This done, our annual root-pruning is simplified into laying bare with the spade two diagonally opposite corners of the slate, and then passing the saw along the four edges, so as to cut through whatever rootlets extend beyond them. We anticipate this will, in addition to saving labour, to tenants especially, enable us to commence operations on each tree as early as the fruit is gathered—or, indeed, earlier on vigorous-growing sorts, and so facilitate the ripening of fruit-buds, finishing the work either then or at any later period experience may direct. Our Society are but juniors in fruit-growing, and we throw out this hint with hesitancy. Will some of your older heads give us a word of counsel or caution on the subject?

The other direction in which our Society has been moving is as to the necessity for some *economical* and *certain* protection for Pear, Plum, and Cherry blossoms in the months of March and April. Every amateur fruit-grower has shared our grief when, in such seasons as 1859, he has sighed over abundant bloom on his choicest trees, fruitless for want of protection from a few degrees of frost. The practical grower for market confines himself properly to the hardy fruits that pay; producing nothing in Pears, in this district at least, fit for the table after September. Had ten others done as much as Thomas Andrew Knight, this need not have been; and we might to-day be as independent on Belgian and French varieties of Pears as our neighbours are on ours. But we have to do with things as they are; and have been experimenting this spring with the view of proving that the general growth of even the more delicate varieties, as pyramids in the open ground, may be made profitable in the majority of seasons. Of course, we throw out of the question all those sorts which, in our climate, require the aid of a wall or artificial heat to ripen either their fruit or fruit-buds, confining ourselves to that considerable number in which success depends upon protection during the critical months of spring. We have to offer our experiments with some degree of diffidence; as, though completely successful in the setting of the fruit of such trees as were protected, the majority of our other pyramids in this peculiarly favourable season have been equally so. Premising also that the item of *cost* has entered into our calculations only in a general way, and that we should not consider any protective plan successful which did not return its entire outlay in the value of one year's crop, we shall endeavour to explain ourselves as clearly as we can without the aid of diagrams.

Early in March we enlisted the services of a few lady friends, whom, for the nonce, we elected honorary members; and with a roll of unbleached calico a yard wide, needles and thread, and our President with the scissors in the chair, we had a long evening's meeting. Conceive any quantity of the calico cut into pieces right across the web, five inches broad at one end and two feet and a quarter at the other, the calico cutting without waste. These pieces, distributed to our lady members, four to each, are sewed side by side, all the narrow ends one way, forming when complete so many crinoline-shaped things, each with a diameter of about six inches at the top and two feet and three-quarters at the bottom. The smaller ends are then filled up with pieces of calico, and we have what, for want of a better name, we call *nightcaps*. Meanwhile our President has been using his scissors vigorously on the rest of the roll of calico, cutting it into like pieces as before (again without any waste); but this time two feet at the *narrow* end, and four feet and a half at the other. These also are sewed four together, but the holes at the top left open, and are known by us as *petticoats*. We have provided ourselves also with a number of iron rods, six feet and a half long, as slender as will lean at an angle of 45° without bending materially, each rod pointed at one end, and with an eye-hole like a needle at the other. Add to these a number of disks of wood or iron, like the head of a small cask—say six or seven inches in diameter, with six small holes drilled round the edge at equal distances. And now for their use.

Our dwarf pyramids are none of them allowed to grow higher than five feet and a half, nor will the lowest branches be allowed to extend beyond two feet and three-quarters on each side. Round each of those we intend to protect we stick six of the iron rods at equal distances from each other, and two feet and three-quarters from the stem of the tree, the eyelet-hole end down, making their points to meet over the tree, and attaching all together by inserting the points in the holes of the wooden or iron disk, which if of iron may be hollow in the centre. The eyelet-holes are useful for inserting bits of wood or iron to prevent the weight of the rods sinking themselves deeper in the earth than need be. We have now, then, a framework round each tree, upon which, as early as the blossom-buds show symptoms of expansion, we slip the *petticoat*, fixing it permanently for the spring. The *nightcap* reaching from the top of the framework to the petticoat is slipped on and off each evening and morning. During the past spring we have used wooden poles instead of iron rods; but the latter are easier fixed and removed, shade the tree less, and from the little friction, we are confident fifty of the nightcaps may be slipped off or on in much less than ten minutes. An iron wire sewed round the bottom of the nightcap facilitates its removal. With the aid of the weathercock, thermometer, and barometer, the nightcaps may be dispensed with three nights out of four, though, of course, with some risk. The poles, well kept, are everlasting; the nightcaps, with care, will last several years; and the petticoats, at least, a season or two.

We need scarcely do more than advert to the advantages of this or any similar system of protection, provided the first outlay is soon returned by the fruit secured. The same apparatus will serve the other purposes of retarding the blossom-buds, or, if desired, the ripening of the fruit.

We have to apologise for the somewhat lengthy way in which we have explained ourselves. If the foregoing be of practical value, Our Family Pomological Society, who are all readers of The Cottage Gardener, will be gratified to receive from others longer interested in fruit growing than themselves, such criticism on their experiments as will further the ends they have in view.—Fruit Eater.

THE ADVANTAGES OF DRILLING CROPS.

In the present day, when voluntary drilling is so much in fashion as to have become almost a "household word;" and when the rule of thumb has so few adherents, and those "so far between;"—when system, order, and method are progressing so rapidly and making such great effects in the material world, it is important—most important I say—that we gardeners should look around us and note all the improved practices of the age.

We have seen how largely the produce of farms has been improved since the introduction of the system of drill husbandry. We have seen those magnificent Swedes, each enjoying its separate square area of ground; and we have contrasted this with fields of thickly-sown broadcast crops, which, although well hoed out, had a one-sided and less equal area to grow in, and were consequently much inferior in dimensions.

We have noticed, too, the rapidity of growth made by such crops, as consequent upon the superior facilities for that first principle of cultivation—surface-stirring; and our observations confirm us in our estimate of this operation, which, if repeated incessantly, would not be too often done. It is, in fact, the very life and soul of cultivation in the farm and garden also.

But we fear that the adoption of the drill is less prevalent in garden practice than it deserves to be; and we think that there are very few crops which are not benefited by being thus treated. We would strongly urge gardeners to the adoption of the drill with such crops as Onions, Carrots, Parsnips, Beet, Salsafy, Skirret, and Scorzonera. Summer Lettuces may also be sown in drills, and thinned out advantageously; as also may Parsley, Chervill, &c. And by thus sowing them when thinned out, a certain space of area is secured to each individual plant, and the

greatest facility is afforded for hoeing amongst them perpetually, on which so much of their future success depends.

Be assured that sufficient space for plants to fully develope themselves, and constantly stirring up and removing the surface soil for airing, are two of the greatest principles for the cultivator to practise. We may gorge plants with liquid or solid manures, and force plethora upon them; but it is far better to feed them moderately, and assist their digestive organs by allowing them an abundance of light and air.

Most of our readers are familiar with the fact, so often proved, of the superiority of the Potato crop when planted above the ordinary width apart drill from drill; and this principle holds good in all our crops. Many persons plant their ground thickly from economic motives; but this too often defeats itself, and ends in the disappointment of the owner by an inferior and defective crop. There is a happy medium, which, if adopted, ensures success; but it is more wise to err by planting at too great a distance rather than to plant so closely that the plants cannot thrive.

With regard to the distances between drills for plants no specific rule can be laid down, as so much must depend on the quality of the soil—a very rich soil requiring, from its giving the plants a more luxuriant growth, the greater distance apart. Practical facts of the kind will always influence the gardener, and make him adapt his means to his end.

One important consideration in drilling is, to adapt the depth of the drill to the size of the seed, and not to make deep ones for small seeds, although larger seeds may be covered three or four inches in depth.

We feel fully aware that what we write here will be indorsed by the majority of good gardeners in this country; but we take the liberty of soliciting the attention of the amateur and cottage gardener especially to this subject. To the man who strives to have his garden "full without o'erflowing," it is really a most important consideration, enabling him to secure a limited space for everything, and to have everything in its allotted space.

It is unnecessary to dilate upon the advantages which result to plants from ample and free exposure to the sun and air. The stunted and sickly occupant of the crowded city cannot compare with the robust and healthy inhabitant of the country village; nor can the crowded and partly blanched plant compare with that which is grown with free exposure. Whether a plant is esteemed for its flower or fruit-producing qualities, the differences between the two circumstances are equally recognisable; and although the fruit-bearing plant may produce a greater quantity of fruit in its weak state, its produce is distinguishable by being small and of little value.

The advantages of the drill system are also very great in the cereal crops. We are not of those who receive with perfect incredulity the results of the celebrated Mr. Mechi's farming, or the statements of the crops produced by the Lois Weedon method of farming. We believe that it is always necessary to make a little allowance for the fervour of statements which enthusiasts of any kind indulge in; but we think it far wiser (than to treat such things with contempt) to experiment on a small scale, and prove for ourselves the advantages or disadvantages of new methods.

We would, in conclusion, earnestly advise those of our "cottage garden" friends who have not tried drilling to make a trial of the system, and we promise them satisfaction and success. We have before advocated deep cultivation; and believe that by its practice, with surface-stirring and drilling, all the essentials of a first-rate system of cultivation are combined.

Henry Bailey, *Nuneham.*

COMMON FLOWERS.

To me, as a reader of The Cottage Gardener—and I have no doubt it is the same with others who do not possess the means or convenience to carry out the bedding-system of our more wealthy neighbours—it is always pleasing to read of our favourites, the hardy-herbaceous and alpine plants, although the article may be a description of one of our most common garden plants.

Ajuga reptans alba (white Bugle), is now in flower, and is an interesting plant for the mixed border, and I have no doubt might be used to advantage by our bedding-gardeners. It is very hardy, and will grow in any situation where the common Bugle will grow; but last year I moved my plants into soil that burns in summer, and nearly lost all my stock.

Trollius Europæus has flowered beautifully this year. The wet weather we had when the flower-buds set helped it on most wonderfully. This plant and *Caltha palustris fl. pleno* seem to want the same cool, damp situation as the plants do in a wild state, or the gardener can do no good with them.

Gentiana verna is another plant which has done well this spring, and I hope it will become a common favourite in our gardens. A collector of botanical varieties informs me, that it is not as common in Teesdale as it has been represented to be. He had a place pointed to him where he might find acres of it. On visiting the spot he found it growing very sparingly.

For years I have tried to obtain *Anemone pulsatilla* (Pasque-flower), a beautiful plant for the flower garden. This spring I found it in flower in a nursery; but being the only plant in stock, the owner refused to part with it. Cannot some of the readers of The Cottage Gardener collect seed from the wild plants, and pass it through some seedsman? I think there would be a demand for it.—Rustic Robin.

DETAILS OF THE CULTURE OF SOME POTTED HARD-WOODED PLANTS.

May I ask the favour of your giving a few A B C directions for the pruning, potting, resting, soil, and general management of Camellias, Azaleas, Ericas, and Epacrises? These beautiful tribes being almost *tabooed* from lady-gardening, by ignorance of their treatment. They are brought annually from the nurserymen in bud, but seldom bloom a second year. From my own experience, of about a dozen of each kind, I feel sure with proper directions they would be as easily grown as the everywhere-cultivated Geranium and Fuchsia tribes, and would relieve the monotony of our windows and cupboard greenhouses.

You cannot be too minute, although I feel it is difficult for scientific professional men to understand the ignorance and difficulties of the inexperienced and limited gardener. Yet, I pray you to try; for you would do a good work if you could induce thousands of young persons to lay aside the crochet-needle and embroidery-frame, and learn to weave living bouquets, and to exercise the powers of their minds in the cultivation of these beautiful ornaments of creation.—Salterton.

There is too much truth in all that you state, but writing-gardeners are not alone to blame. There is hardly a single, simple, minute, direction about plant culture, but has been treated even to tediousness in these pages; but when people are not thoroughly interested in the particular matter at the time, they seem to consider it no affair of theirs, and hence questions are repeated this week that were fully answered a fortnight previously, only to a different correspondent. When these repetitions are made very often, then another class of readers, farther advanced, are apt to exclaim, "Why repeat the same thing over and over again?" Well, were I to make a clean breast of it, I should be apt to own, that the same thing over again, with a few salient exceptions, forms the bulk of all gardening literature for a number of years past. Matters may be presented under different aspects, and expressed in phraseology more or less fitting and pleasing; but the main facts and principles of actions recommended are very much the same. This is much more allowable in serial, than in what pretend to be standard works. The first are intended to act more as timely reminders, and to afford to all readers means alike of information and inquiry. The advanced professional, therefore, whilst passing with a shrug of his shoulders what to him is now of no moment, should be generous enough to recollect, that these are matters that are greatly interesting to those just beginning to make gardening alike a study and a pleasure.

Did it not look somewhat selfish and extra professional, I should praise to the echo the concluding sentiments of our correspondent's letter. I have known ladies who frankly owned that they were indebted for their vigorous health, robust strength, and buoyant cheerfulness, not to the neglect of their embroidery-frame, or any other lady-like accomplishment or study, but to their rising early, and with their own hands forking, hoeing, tying, and mixing their soil, and potting their plants. Let people talk as much as they will, I feel confident that the more-than-mesmeric power that flowers are capable of exercising over us, will never be thoroughly felt until we sympathetically engage in ministering with our own hands to their wants. I never could see how any young lady of good sense and true refinement, should for a moment consider such work so unfeminine and un-

genteel as to be "not at home" on such occasions, especially to male visitors. I feel confident that every man whose opinion is worth caring for, would look upon such occupations and accomplishments as an extra reason for admiration and esteem. Did young ladies more generally imitate our "Floras" and "Rosas," in working among their plants, we should grieve less in looking upon wan, sickly complexions, and structures so weak as only to be kept upright with braces and crutches; and we should hear less of dyspepsia, neuralgia, and other multifarious ailments—the plentiful produce from the soil of a false gentility. Studious clergymen have informed me what martyrs they used to be to headaches, tic, and other painful maladies, until they took to the spade and the trowel in their gardens. Some of them cannot stop speaking of the freedom from pain thus derived, the new pleasure thus opened up to them, the profit to their household accruing thereby, and the minimum to which the doctor's bill was thus reduced. One clergyman who acted thus on the advice of his medical man, has told me that it was a standing joke with the good benevolent doctor every Christmas time, to the effect that as he prescribed the effectual medicine, he did not see why his yearly bill should not continue as it used to be.

In mentioning some of the minutiæ desired by our correspondent, I should more easily have met her individual case, and those similarly circumstanced, if I knew exactly what these circumstances are as to the glass means at command. Allusion is made to windows and cupboard greenhouses, and no doubt it is desirable to have variety there as elsewhere; but with mere windows alone, some of the things mentioned will not succeed well, if kept in the same place all the year round. First. Because in the case of Heaths, for instance, the atmosphere in a living-room would be too close, warm, and dry, in winter; and, secondly, because at the same time, especially in a town where gas was used for light in a room, the fumes of the gas would be too much for the fine needle-like foliage. In cupboard greenhouses, or by whatever name small distinct greenhouses are called, the same objections will not apply, as there the temperature and the atmosphere will be more under control. Where the windows of a mansion are the whole glass that a plant-grower has to depend upon, it will be good policy to have some of these windows—say those of the sitting-room—as the show-house, as it were, for the more ornamental plants; and the other windows as the growing and resting-rooms, &c. I would advocate this mode, because, provided the windows and shutters are closed early in cold weather in winter, and simple means are taken to exclude the frost, the generality of the plants will do better in a sweet atmosphere rather cold, than in a warmer atmosphere dried by the fire and contaminated by the gas of the sitting-room. Other things being equal, my observations lead me to conclude that plants of all kinds will keep better in rooms that are lighted at night by candles instead of gas; and if secure from frost, they will keep better still, if allowed to sleep quietly in the dark evenings without any artificial light whatever. When, therefore, good people will have their rooms extra hot and extra bright in an evening, it would be good policy to remove a favourite plant into a room less heated, and where the air would be less dried and contaminated.

With these preliminaries, I will shortly allude to the A B C as to pruning, potting, resting, soil, and general management of the Camellia.

The Camellia is nearly as hardy as the Laurel; but blooming in winter and spring, unless in very sheltered places, the flowers are apt to be destroyed with wind, and rains, and frosts, unless kept under protection. Properly speaking, the Camellia can hardly be said to need resting, though it will stand uninjured for a long time in winter, growing very slowly; and of course at that time the roots must neither be allowed to remain very wet nor very dry, or the flower-buds will be apt to drop whenever the plant is exposed to more stimulus and excitement. At such times the plants may be kept near the glass in a cool room with propriety, until you wish to swell and open the buds, when they should be placed in a room averaging at the window from 45° to 55°, and where the plants will have a fair portion of the sun's rays. The time at which the plants more especially like a little rest is for a week or two when just finished blooming. Clean away every vestige of flowers and dust, using a sponge, or syringe, or both. Then place the plants where they will be a little shaded and have an airy cool atmosphere about them; and though not allowing the roots to get dry, give them but little water in proportion to what they needed before. This treatment will be relished as a refreshing repose, enabling the plant to collect its energies for a fresh start. In a fortnight or so place the plant where it can have a higher temperature, averaging from 50° to 60°, with a rise from sunshine of 10°. Keep the plants shaded from bright sunshine, and sponge or moisten the stems and foliage several times a-day with the syringe, and give increased water at the roots in proportion to the heat and the light. Ere long you will see signs of fresh growth, and then is the best time for

Pruning.—No plants stand the knife better than healthy Camellias. Small plants may need no pruning. All the bloom-buds are produced near the points of the shoots of the current year's growth—in other words, the flowers next winter and spring are produced on the wood made and ripened this summer and autumn. When it is desirable to keep plants dwarf and bushy, the knife must be used pretty freely. When there is nothing but a greenhouse or a window, it is best to cut back no farther than last year's wood. Where there is the advantage of a hotbed or hothouse the plants may be cut back, even though wood of two or three years old be cut into. There will be no danger of their breaking. The chief thing will be to get the young shoots at first to grow freely; and then, by gradually exposing them to more sun and air, to get the wood to ripen well, and the flower-buds to knot at the points of the shoots. Whether pruned or not, this growing period is the time when the Camellias must not stand still, but have plenty of moisture at the root, be syringed overhead, and be kept closer and warmer and more shaded than usual. These conditions may be secured best in a forcing-house, in a greenhouse kept more shut up and shaded at one end, or in the window of a living-room, by giving less air than usual and using a muslin blind over the glass. When the young shoots are from four to eight or more inches in length, according to the size and strength of the young growth, more air and light should be gradually given to harden the wood and set the buds. Before that, however, just when fresh growth is fairly commenced, I would recommend the plants to be examined as to

Repotting.—Camellias, with a little fresh surfacing, will bloom in the same pots, if six inches or more in diameter, for years. In surfacing it is best to pick away a portion of the surface soil, and supply with fresh a little richer than usual. If there is the smallest fear of the drainage being choked up, it is advisable to examine and drain afresh. For window flowering I would recommend this to be done, and removing carefully a quantity of the exhausted soil, using a fresh-pointed stick, without injuring any roots, and placing the plant again in a clean pot of the same size, or only a little larger, and using fresh soil, and watering directly. In potting, or redraining, place a good-sized crock, or broken piece of crock, with the rounded side over the hole. This prevents worms entering. Small semicircular zinc caps would be the best thing for amateurs. Over that place a layer of drainage as hollow as possible, then finer drainage, and then finer still; filling at least two inches with drainage, and cover all with a thin sprinkling of moss, which will prevent the soil choking up the drainage, and prove also a storehouse and an equaliser of moisture to the roots. I have used chopped straw for this purpose; but it is not so good as moss. A thin layer of the roughest compost should go over this, and on that the prepared ball should be placed, and the new soil carefully put down by the sides and well firmed by repeatedly striking the pot on the potting-bench. For all small shifting, using anything like a narrow thin stick for firming the soil by the sides of the pot is little better than barbarism. Think of the tender roots that may be thus injured! Whether thus potted, or merely redrained and surface-dressed, the same, or rather more care than alluded to above, must be taken to prevent the plant receiving any check by giving, if possible, extra warmth, extra moisture to its foliage, and extra shade from bright sun until growth is proceeding freely, when more air, light, &c., should be gradually given.

If repotting is to be done, I have recommended the above time to avoid anything like intricacy or confusion; but many gardeners wait for repotting until the flower-bud clusters are formed. They take care and do it early enough to secure the pots being full of roots before the end of autumn. If a young beginner and amateur were to do so, and the new soil was not filled with roots before winter, there would be a risk of great many of the flower-buds dropping when they began to swell for bloom. By repotting, or fresh arranging the drainage early, there is every chance that the pots will be thoroughly well supplied with roots before winter. In this will be found, so far as flowering and fruiting are concerned, the most striking difference between growing plants in the open soil, or in pots and boxes. In the latter case, first-rate flowering or fruiting will only take

place when the roots are close to, technically are kissing, the sides of the pot. Many seem to forget this fact. I shall at present say nothing in the way of explanation; I merely want the fact to be recognised as a fact. Thus: supposing I grow two Vines in pots this summer, and obtained on each a strong, well-ripened shoot before winter, rested them securely in the cold, dark months, and started them into growth next March; but allowed one to remain in its pot, but turned the other out into a bed of proper soil, I should expect a fair crop from the first, and but little or nothing from the second. Had I grown them equally strong and well ripened in the soil of a border the previous season, I should have expected both to be equally fruitful, if prudence did not advise taking but little fruit from them. Just so were you to plant now in a border of a conservatory healthy Camellia plants, and give them requisite attention, you might expect them to flower next winter and spring. But if you left the operation until September, or later, I should expect a great part of the flower-buds to drop. Just so, and even more with a Camellia plant in a pot, or by the way almost every other plant in a pot. Successful flowering will greatly depend on having the pots full of roots before the flower-buds swell. Of course, the sooner the wood is made and ripened, and the flower-buds knotted, the sooner will the plants bloom when exposed to an average temperature from 45° to 50°. When long much lower than that the buds will not swell. When in comparative rest, in winter, the plants will keep their flower-buds in a stationary state for months.

Soil for Potting.—Nothing is more easily satisfied. I have never seen finer plants than those grown in brownish yellow loam, and enriched, when growing and swelling their flower-buds, with weak manure waterings from old cowdung. Two parts sandy loam, and one part heath soil, rotten sweet leaf mould, and bits of broken charcoal, and a little silver sand, will also grow them well. Where such are not convenient, nothing is better than rotten turf from the roadside. If soil is wanted soon, go to a roadside in a loamy district, pare off the turf there, and lay it aside for future use, and then take about two inches of the upper stratum, and spread it, and turn it in the sun for a week or more. If you use a riddle at all, use a fine one, to get rid of the finer particles, and use the rest a little rough, mixed with a little leaf mould, dried and sweetened in a similar manner. Most establishments could manage a few bits of charcoal to help for drainage, if not to mix with the soil. An open simple soil will answer thoroughly; but plants are something like animals, they are apt to tire when they have the same dish continually from day to day, and from year to year.

General Management.—Supposing the plants are now out of bloom, the starting, pruning, potting, and growing will be the principal things. Under such circumstances the plants will be the better of a warm, close, somewhat shaded atmosphere, with as much water at the roots as the plants can consume, without deluging them, or keeping the pots in saucers, and frequent syringing overhead.

As the young shoots progress give more air and light by degrees. When the shoots appear to stop lengthening, and form buds about the size of pin heads, give more air and light still; and when the buds swell a little more, the plants should have all the air possible, and be shaded a little from the brightest sun. In July and August, therefore, the plants would be quite at home in an open greenhouse with the roof a little shaded—in an open room with the window open, but the plants a few feet from it—on the north side of a wall, and, better still, of a hedge, which would blunt the force of the sun's rays and yet allow the plants to have the full play of the air. After the buds are set less water will be required; but the soil must never be dry, and the sun should not beat against the pots with force. When growing freely, and also when the flower-buds are swelling, weak manure waterings may be given freely. In the early period of growth, the sponge or syringe should be used freely. The plants should be defended from heavy autumn rains; and it is safest to house them before the end of September, as in wet porous pots very little frost is apt to injure the roots, and when thus injured the buds are apt to drop. Plants with forward buds may be placed in a warm greenhouse or room, and the water given them should be warmed to from 50° to 60°. The flowers will not open well if the average temperature is lower than from 45° to 50°. Plants with the buds still small should be kept rather dryish, and in a cool airy place all the winter, but free from frost. As the sun gets power in spring the buds will swell and open freely, more water being given in proportion to the heat and consequent evaporation from the foliage. When done flowering, encourage growth. A plant may bloom continuously in the same window or greenhouse without extra care; but with the attention indicated success will be more certain. R. Fish.

[We have allowed Mr. Fish to play the agreeable to our correspondent; but we must recommend her in addition to buy "Window Gardening for the Many." It may be had at our office for 6*d.*; and she will find in it full directions for managing "under difficulties" all her potted and petted plants.—Eds. C. G.]

WHAT KNOWLEDGE IS NEEDED IN A LANDSCAPE GARDENER?

Many years ago, there was a grand struggle between the medical and legal professions as to the fitness of their members for the office of coroner. The lawyers asserting both the custom and the propriety of appointing a man who understood the legal bearings of a case; and their opponents declaring the superior utility of anatomical knowledge in cases of personal injuries, and of medical experience to guide inquiries and conclusions concerning the proximate causes of death. The result has proved that a man of ability, whether surgeon or solicitor, may make a good coroner.

In like manner the faculty of landscape gardening has been from time to time arrogated by architects, as that of architecture has been by landscape gardeners; and some degree of acrimony has followed the innovators in either case; therefore it may not be wholly unprofitable to devote a few moments to the inquiry.

Between architecture and gardening in its proper and accustomed acceptation, as identified with the science of botany, there is the most obvious difference and dissimilarity; so that it would appear altogether incomprehensible, if a professor of either of these distinct arts were to assert that he found no line of demarcation between them, and that they blended imperceptibly with each other. Nor is there, perhaps, an instance in which such a plea was ever made for adopting the two vocations as a joint pursuit.

It is not between architecture and botany that any moot point subsists, but simply as to the qualifications necessary for "the artist in practical landscape"—that is to say, for enabling him to treat a given site upon such principles as shall best develope its elements of the beautiful, and raise the largest degree of admiration of which that site may be readily susceptible. It is evident that an artistic feeling is demanded, similar to that which guides the painter in the highest class of landscape compositions. They have each the same natural objects to deal with,—such as the winding lake with its sinuous boundary, the level glade, the gentle rise with lines of long but varied sweep, the sharper knoll, the unexpected vista, the abrupt eminence with crisp articulations of abraded rock, and catching lights contrasted with the deepened shadows of some near ravine, are open to the eclectic pencil now as they were to Claude and Salvator Rosa. To display the same feeling by earthworks, roads, water, and constructions, to prepare and give to the practical cartoon its "mould of form," constitute the scope and purpose of landscape gardening.

Some perception of surface and texture as well as indications of arboreous accessories may be included; but nothing that requires more botanical knowledge than men like Lee and Creswick may care to acquire. They can paint what they see; but they paint with feeling and discrimination, arranging the general subject by a sense of the agreeable, excluding any vulgar or hurtful feature, and interpolating accidental points, to lend an interest and impart relief.

In Italy, where architects were often so largely imbued with the painter's conception and manual power as to practise both arts, the finest palaces are sometimes so mixed up with the grounds, arched corridors conducting to some fairy-like grotto, or "cropping out" in some remote nook, cooled by the sparkling *jet d'eau*, terraces decorated with choice vases, or *porte fleurs*, and marble figures from the graceful noble to the goat-like satyr, as to leave no doubt whatever concerning the nature of the directing mind.

Of what use, indeed, would botanical knowledge have proved in these cases? and as to floriculture it cannot be heard of in the same sphere at all.

If I have rightly conceived the principles of landscape garden-

ing, and the artistic power they demand, a fair field seems open to all whose observation and study may have fitted them for its occupation.—An Architect.

[We so far agree with our correspondent, that we think many architects might arrange, as to *forms*, an Italian garden, composed, as it is, of terraces and geometric figures. We go a step further, and say that many architects might decide where a group of trees would be effective in landscape gardening, which is totally different from the Italian style. But architects usually would not know what trees to plant; nor even what flowers to put into an Italian garden. Botany is not necessarily among the knowledge of a landscape gardener; he does not require to know their classification or their physiology; but it is required of him to know the forms of trees and shrubs, the colours of their foliage, and the soils they prefer.—Eds. C. G.]

OUR WEEDS.

GROUNDSEL.

On my sending some notes on Taraxacum, you were pleased to intimate a desire that communications of this nature would be more frequent: therefore, presuming on the sincerity of your wishes, and as a stimulus to others, I select the commonest but not the least useful of our weeds—Erigerum. In ancient Greek Ηριγερων, from ηρ the spring, and γερων an old man, the blossom being of a greyish-white, like the hair of an old man; in Latin *Senecio vulgaris*, because it quickly becomes old and turns to white down. The Germans call it *Creutzwartz*. Class and order, Syngenesia Polygamia superflua. Theophrastes mentions it with favour, naming it as possessing mixed faculties—"it also cooleth and withal digesteth." Discorides gives a fuller account of its virtues, and details them at some length. He says, "Leaves boiled in wine and drank healeth pain and ache of ye stomach that proceedeth of choler. Leaves and flour stamped with hogs grease ceaceth burning heat of ye lower belly and hemmorhoids. By adding salt it helpeth Struma or Kings evil; stamped in milk and drunk, helpeth red gums and frets in children, and that with powder of frankinsense healeth wounds in sinews. The like operation hath the downe of the floures mixed in vinegar; boyled in ale with honey and vinegar it provoketh vomit, especially if you add thereto a few roots of Assarabacca."

It shall not be my care to endorse all the virtues of this weed, described so minutely by Discorides, nor indeed all the abuse heaped on it by more modern authors; nor shall I venture to espouse the cause of a weed so friendless and apparently so noxious, sedulously determined to plant itself in every nook, crevice, and cranny, to the detriment of everybody and the good of none. Not so: the omnipotent Dispenser of endless and inscrutable good has sent even this not-to-be-exterminated weed for wise and good purposes; and, not the least, its alterative and aperient virtues—especially adapted for the sick among the feathered tribe, which resort to its leaves and flowers at a time when Nature dictates its use. There are cases when the lords of the creation have been compelled to give God thanks for sending to them such an apparently useless weed in their need, at a time of dire extremity. I will briefly state a case.

A. B., residing about three miles from my former residence, in the interior of the county of Devon, had been ill for some twenty-four hours with violent colic and obstinate constipation of the bowels. Remedies had been exhibited without the slightest avail, some of these for many consecutive hours. Active inflammation and its consequence, rapid disorganisation, were hourly apprehended; and in this fearful state I left him late at night, promising again to see him (D.V.) on the morrow. The morrow came and found me at the patient's door; and, to my joy and surprise, the poor fellow was comparatively convalescent. The wife's statement to me was just as I write:—"Lor, sir! these doctors be very *gude* for some sorts of evils, but they be'ant worth a *brass varden* for my man's grief and such like. A cup of Groundsel tea, which mother made Robert take just after you left, set things agoing, as I've a know'd it to afore. 'Tis a fine thing I 'sure 'e, sir."

Doubtless there might have been found higher-class medicines more congenial to the taste of the pharmacopeist, certainly not more suitable to the complaint of the poor man. It is not for me to argue on the merits or demerits of Groundsel tea as a remedial agent. Nothing certainly has been made in vain; and even the gardener's pest, the common Groundsel, is not an exception.—W. H., *Exeter*.

WHAT TO LOOK FOR ON THE SEASHORE.

(*Continued from page* 152.)

CHAP. III.—CORALLINES.

We now proceed to notice a peculiar species of Polype, which is allied to the Actiniæ, although differing from them in several respects. These are the coral-forming Zoophytes. It may not be uninteresting, before examining Corallines peculiar to our own coasts, to give a hasty sketch of the more important species, which produce the coral of commerce, and which are abundant in the Mediterranean, the Red and China Seas, and in the Persian Gulf.

The Corals found in these waters bear a close resemblance to the branch of a tree, always grow to the under surface of rocks, and project in a perpendicular direction downwards. They consist of united stony cells, the habitations of certain marine animals whose fleshy parts surround a branching, hard, and stony centre. They are of different colours, varying from black or bright red to dull white; and their value is increased or diminished according to size, colour, and hardness.

Red Coral is obtained by the fishermen in the Mediterranean from large beds, or reefs, along the coasts and near the islands. The apparatus employed is a large wooden cross weighted in the centre with lead, or stone, so as to sink it to the bottom. The projecting extremities of this cross are furnished with strong nets and loosely twisted hemp. This cross, by means of a rope, is dragged along the under surface of the rocks, and thus breaks off the Coral branches, which get entangled in the network, when it is drawn to the surface. The Coral, however, has a very different appearance on being newly obtained from its watery bed to that which it exhibits when exposed for sale. It is originally covered with an external fleshy coating, which has numerous Polypes extended through it. This external layer is removed and the branch carefully cleaned.

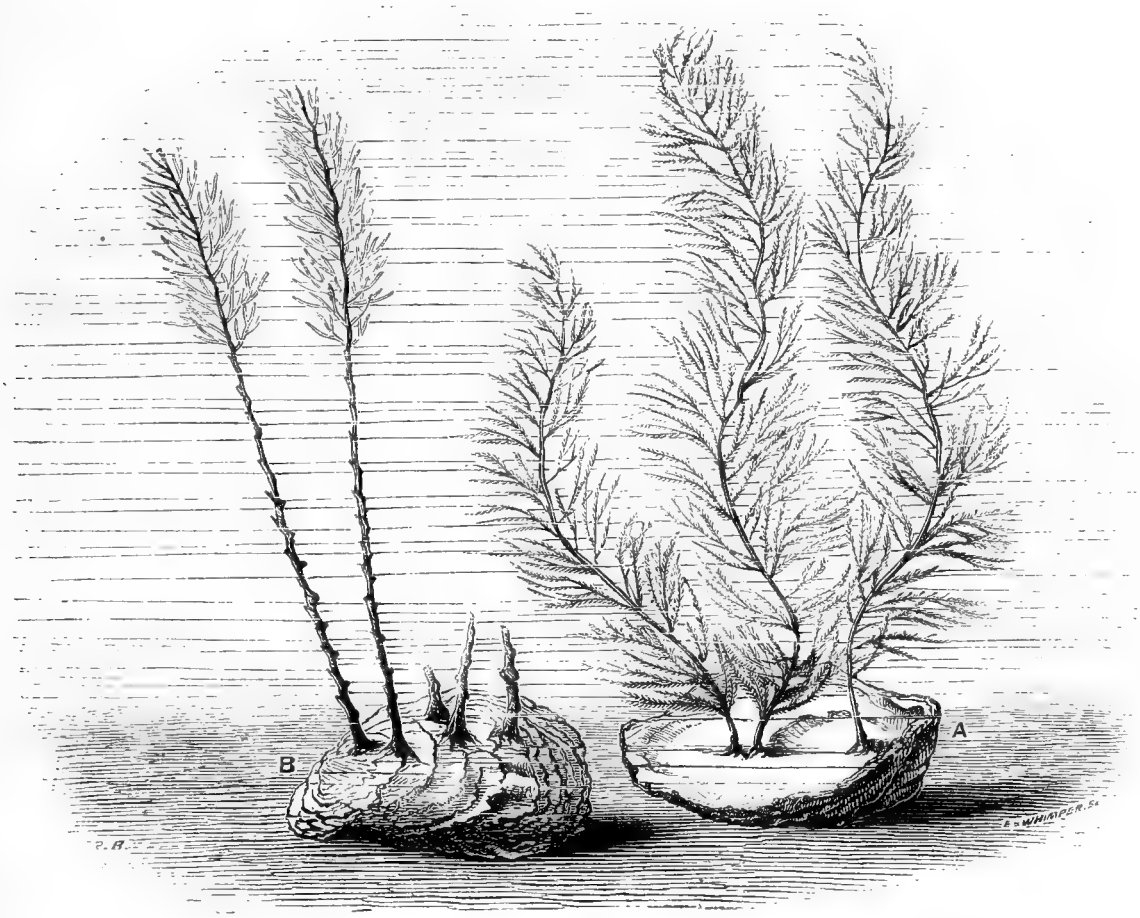
The Corals of the tropical seas, however, may be regarded as the most wonderful of their species, and have well won the title of "master builders." The structures reared by these creatures, minute as the architects are, far exceed any of the labours of man. The proudest edifices erected by human labour shrink into insignificance when compared with the achievements of these marine workers—as witness the Coral reefs of Australia, which extend in an almost unbroken chain for nearly a thousand miles. Ceaselessly from the earliest ages of the world, have these Coral tribes gone on withdrawing lime from the waters of the sea and fixing it in their tissues, until not only have they formed mountains and islands, but entire continents.

In the British seas, however, but few specimens remain, although they must have been multitudinous at one period, for in the limestones of many districts are still found enormous beds of fossil Corals. Let us, however, proceed to examine such specimens of Corallines as are, to some extent, common to our coasts. They are usually known under the name of Madrepores, which is a hybrid compound of the French word "*madré*" (spotted), and the Latin word "*porus*" (a pore). These Madrepores, as before stated, resemble the Sea Anemones in their general organisation. They commonly consist of light, stony, porous matter, studded with shallow pits, in which are seen thin perpendicular plates radiating towards a centre. Sometimes instead of pits and radiated plates, the latter occur in rows of an involved and sinuated pattern. During life there arises from between these plates a gelatinous tissue, bearing a mouth with protrusile and crenated lips, and surrounded by sensitive tentacles, all of which, when the creature is alarmed, contract and disappear within the stony recesses, leaving nothing visible but the white and seemingly naked plates. Naked, however, they are not, being covered with a film which is drawn so tightly over them as to be reduced to a tenuity utterly invisible. In the large arborescent Corals, each pit must be considered as the habitation of a single animal, the whole mass forming a combination of many hundred individuals.

One of the smallest species of the British Madrepores is known as *Caryophyllea Smithii*, and illustrates the description just given. It is not a quarter of an inch high, and is less than the third of an inch in diameter. It consists of a stony cylinder, or inverted cone, the upper part of which, hollowed into a cup-shape, is formed by the edges of thin plates radiating towards the centre, as in the other instance, when in the water a pellucid gelatinous flesh emerges from between the plates, rising to the height of an inch above their level. Exquisitely coloured tentacles fringe the sides of the cup-shaped cavity, across which is

stretched the oval disk with a star of some brilliant colour surrounding a central orifice or mouth. On removing this creature from the water, the animal portion suddenly shrinks, and little is visible but an array of chalky plates standing on edge and radiating from a centre; but on the creature's regaining its composure, or being troubled by the pains of hunger, a very beautiful half-transparent substance is thrust out from between the plates, and presently puts forth a number of tentacles, resembling those of the Sea Anemone, except that each one has a small, globular head.

Thus will be seen the close alliance between the Madrepores and the Sea Anemones. There is, however, this peculiar distinction between them—the movements of the latter are voluntary, whereas the Madrepores are permanently attached to the rock by their stony skeletons. Again, in the Sea Anemones, the laminæ, or plates, continue fleshy during the animal's life; whilst in the Madrepores they secrete a coating of carbonate of lime, which hardens and thickens by degrees, until at last it forms a stony cast of the animal. To sum all up, we may regard the corals as bony skeletons of Anemone-like Zoophytes, not fashioned by mechanical labour like the honeycomb of the bee, but secreted within the body of the animals in the same manner as bones are secreted in the human body.



Another beautiful Coralline is the *Sertularia argentea* (*fig.* A), commonly called the *Squirrel-tailed Coralline*, from its somewhat resembling that appendage. "This species generally grows erect," says Ellis, "with thick tufts of alternately denticulated ramifications placed in a spiral or screw-like order round the stem from top to bottom." This is a very elegant Coralline, and grows to nearly a yard in height, and is generally found attached to oysters and other bivalves.

Another remarkable species (*fig.* B), is the *Bottle Brush Coralline* (*Thuiaria Thuia*). "This," says Dr. Landsborough, "is a very remarkable Coralline, and it cannot in its mature state be mistaken for anything else. It is from eight to twelve inches in height. The stem is erect, horny, and a little zigzag. The alternate branches below fall off and leave the stem naked, with only a tuft of branches towards the top, giving it much the resemblance of a bottle brush."

Madrepores, under certain circumstances, exhibit a remarkable faculty of reproducing parts. For instance: new plates will replace those accidentally broken, and it has been noticed that in a specimen divided perpendicularly, each half of its mouth has discharged an independent duty without any manifest inconvenience. The localities where the Corals may be found, and the mode of identifying and securing them, may be gathered from the account given by Mr. Gosse, of his search for them. He says—"I searched for some time without success for the Coral, and had begun to despair of finding it, for the tide was almost at its lowest, when suddenly I caught sight of one projecting from under the surface of one of the slanting ridges of rock. The water would not allow me to reach it with any hope of detaching it uninjured; but presently I peeped into a small cavern formed by large masses of rock piled one against another, in which there were nearly a score of them. By a little manœuvering, I managed to squeeze my body between the stones, so as to work with the chisel, disregardful of the water which covered my feet below, and the coating of mud, the slimy Zoophytes and Sponges that adhered to the overhanging rock above me. The Corals varied in size from that of a pea to three-quarters of an inch in diameter. They were not at all clustered, but scattered at irregular distances. I observed them to be fixed to perpendicular and overhanging surfaces, but in no case on a diagonal or horizontal one with an upward aspect, not even in the remotest part of the cavern. All that I saw were left exposed by the receding tide, though in any but spring-tide, they would all have been constantly covered. I afterwards found a few more on the sides of pools, in the rocky ridges, several feet above low water mark."

The mode in which the Madrepore feeds is somewhat amusing, and it is found capable of displaying great activity and some intelligence. If you perceive one beneath the water with its tentacles exposed, and drop a small insect into the water just above it, pushing it down until it touches the tips of one of the tentacles, you will see the animal draw it by means of its tentacles down within its plates near the inner margin. By the aid of a lens you can further perceive the mouth cautiously open, and move over to the side where the prey was captured. The victim itself by an almost imperceptible movement is carried forward between the plates to meet the advancing mouth, which, how-

ever, is more rapid in its motion, and on reaching the edge of the plates it gradually receives and closes on the insect, having done which it slowly returns to its proper position in the centre of the disk.

The Madrepore, although very voracious, is somewhat fastidious as to the quality and flavour of its food, and on swallowing a morsel and disapproving of the taste, will immediately reject it.

Some living specimens of the branched Coral have been dredged off the Cornish coasts, and the west of Ireland, and pieces broken off the rocks by the violence of the waves, are occasionally picked up on the seashore.—W.

(*To be continued.*)

MANAGEMENT OF CERASTIUM TOMENTOSUM AS AN EDGING.

How ought *Cerastium tomentosum* to be trimmed? I had borders of it to Scarlet Geranium-beds before the Crystal Palace was built, and was obliged to give it up, because it got such a ragged and broken appearance, and not thinking of clipping or trimming it, there seemed no remedy. Since reading your description of the edgings at the Crystal Palace, I struck a great quantity of cuttings last summer, and made an edging to a ribbon border. It was planted last autumn; but although I have had the tops cut, and all the flower-buds taken off, it has a *loose*, ragged, unsatisfactory appearance. How low ought it to be cut? or, rather, how many *joints* ought to be left on each shoot?—C. W.

[*Cerastium tomentosum* is the very tidiest plant on our planet. It has stood one generation and two-thirds of a second generation on rockwork, steep banks, and rooteries, without requiring one single help, but to be left alone entirely, and all the time it never had a leaf, or shoot, or bloom out of place. But when elevated to form the edges of the ribbons of more aristocratic arrangements, it went off its simplicity, took to airs of its own, and it must needs be waited upon and restrained. It must be lifted every year, late in April, *and at no other time*. The roots must be taken out as carefully as Couch Grass, the tops cut down to the second joint next to the roots, and only three or four joints of the roots to be retained for planting. The smallest pieces that can be made of these old roots make the best plants for the new lines, and the distance to plant them is according to the size of the pieces. We plant ours just three inches centre from centre, and we confine the edging to four inches wide at the surface of the ground, and three inches wide on the top with sheep-shearing scissors. But the neatest way to have it, is from March-made cuttings planted two inches apart in the line, and kept to one inch in width the whole season. A finer line than Box itself.]

DANDELION AND TEMPERANCE AS GUARDIANS OF HEATLH.

Mr. Hardy's admirable remarks under the above heading, are aptly illustrated by a quaint essay on temperance, translated by George Herbert, from the Italian of L. Cornarus. I enclose an extract which contains the pith of the essay.—Charles E. R. Robinson, *Therfield Rectory*.

"* * * When my friends saw me at the age of eighty, and one strong and lusty, they had a great desire to know the way of my life, and how I came to be so. Wherefore, I will declare the causes which moved me to forsake intemperance and live a sober life, expressing also the means which I have used therein. I say, therefore, that the infirmities which did not only begin, but had already gone far in me, first caused me to leave intemperance, to which I was much addicted. For by it and my ill constitution (having a most cold and moist stomach), I fell into divers diseases—to wit, into the pains of the stomach, and often of the side, and the beginning of the gout, with almost a continual fever and thirst.

"From this ill-temper there remained little else to be expected of me than that, after many troubles and griefs, I should quickly come to an end; whereas my life seemed as far from it by Nature as it was near it by intemperance. When, therefore, I was thus afflicted, from the thirty-fifth year of my age to the fortieth, having tried all means fruitlessly, the physicians told me that yet there was one help for me if I could constantly pursue it—to wit, a sober and orderly life. They added, withal, that unless I speedily used that remedy, within a few months I should be driven to that exigent, that there would be no help for me, but death shortly to be expected. Therefore, out of a hope of avoiding death and pain, I resolved to live a temperate life.

"Whereupon being directed by them in the way I ought to hold, I understood that the food I was to use was such as belonged to sickly constitutions, and that in a small quantity. Upon this I so addicted myself to this course of life that I never went a foot out of the way, and I found within a few days that I was exceedingly helped; and by continuance thereof, within less than one year (although it may seem to some incredible), I was perfectly cured of all my infirmities.

"Being now sound and well, I began to consider the force of temperance, and to think thus with myself, if temperance had so much power as to bring me health, how much more to preserve it.

"Therefore, trusting on experience, I forsook all those meats and drinks which I had found hurtful, and chose that wine which fitted my stomach and in such measure as easily might be digested, taking care never to rise with a full stomach. By this means those benefits still continue, because from the time I was made whole I never since departed from my settled course of sobriety."

FRUITS ADAPTED TO THE VARIOUS LOCALITIES OF GREAT BRITAIN.

(*Continued from page* 170.)

STRAWBERRIES.

Princess Alice Maude (*Alice Maude*).—Fruit medium sized, ovate or conical, and frequently large and kidney-shaped. Seeds prominent or very slightly embedded. Skin scarlet, becoming dark crimson when ripe. Flesh scarlet throughout, tender, juicy, sweet, and with a rich, brisk flavour.

Princess Royal of England (*Cuthill's Princess Royal*).—Fruit medium sized, roundish-ovate or conical, with a neck. Seeds deeply embedded. Skin deep scarlet, where exposed to the sun, and paler in the shade. Flesh pale red at the surface, whitish towards the core, very rich and highly flavoured.

An abundant bearer, and an excellent variety for general cultivation.

Prolific Hautbois (*Belle Bordelaise*).—Fruit below medium size, conical. Seeds prominent. Skin light purple in the shade, and blackish-purple on the side next the sun. Flesh firm, sweet, and with the rich peculiar flavour of the Hautbois.

Prolific Pine. See *Roseberry*.

Rival Queen. See *Omar Pasha*.

Rivers' Eliza (*Seedling Eliza*).—This is a seedling from Myatt's Eliza, possessing all the character and flavour of that excellent variety, but is a more abundant bearer, and of a hardier constitution.

Roseberry (*Aberdeen Seedling; Prolific Pine*).—Fruit large, conical, and pointed. Seeds deeply embedded, with prominent ridges between them. Skin dark red, becoming blackish as it ripens. Flesh pale scarlet, firm, with an agreeable flavour.

Royal Pine. See *Swainstone's Seedling*.

Ruby—Fruit large, roundish, dark red. Flesh pale red, soft, and woolly, with a large core, and inferior flavour.

Scarlet Pine. See *Old Pine*.

Seedling Eliza. See *Rivers' Eliza*.

Sir Charles Napier.—Fruit very large, ovate, flattened, and wedge-shaped. Seeds not deeply embedded. Skin shining, of a fine bright pale scarlet colour. Flesh white, firm and solid, briskly acid, and not highly flavoured.

This is a fine handsome strawberry, well adapted for forcing and for early market purposes. The plant is remarkably tender, perhaps more so than any other variety.

Sir Harry.—Fruit very large, roundish, irregular, frequently cockscomb-shaped. Seeds large, and deeply embedded. Skin dark crimson, becoming almost black when fully ripe. Flesh dark red, not very firm, but tender, very juicy, and richly flavoured.

Sir Walter Scott.—Fruit medium sized, conical, and pointed, with prominent seeds. Skin deep red. Flesh pale, firm, and inferior in flavour.

Stirling Castle Pine.—Fruit large, ovate or conical, pointed, even and regular in shape. Seeds small, not deeply embedded. Skin of a bright scarlet colour, becoming dark red as it ripens. Flesh pale scarlet, brisk, and of excellent flavour.

Swainstone's Seedling (*Royal Pine*).—Fruit above medium size, ovate, even and regular in its shape. Seeds small, and rather deeply embedded. Skin pale red. Flesh pale, rather hollow round the core, and with a fine rich flavour.

This is a good variety for forcing, and is a good bearer.

Trollope's Victoria.—Fruit very large, roundish, even and regular in its outline. Skin light crimson. Flesh pale scarlet, tender, juicy, sweet, and richly flavoured.

This is a good early strawberry, and an excellent bearer.

Viscomtesse Héricart de Thury. See *Duchesse de Trévise.*

Wilmot's Prince Arthur.—Fruit large, conical, even and regular. Seeds small, not deeply embedded. Skin deep red and glossy. Flesh scarlet, firm, but hollow at the core, of a rich flavour when highly ripened.

The plant is a great bearer, and the fruit bears carriage well.

LIST OF SELECT STRAWBERRIES.

Black Prince	Highland Chief
British Queen	Keens' Seedling
Carolina Superba	Myatt's Eliza
Deptford Pine	Oscar
Duchesse de Trévise	Princess Royal of England
Elton	Swainstone's Seedling

WALNUTS.

À Bijoux. See *Large Fruited.*

Common.—The common walnut being raised from seeds there are a great number of varieties among those grown in this country, varying in size, flavour, thickness of the shell, and fertility. To secure a variety of a certain character, it must be perpetuated by grafting in the same way as varieties of other fruit trees are propagated.

À Coque Tendre. See *Thin Shelled.*

Double. See *Large Fruited.*

Dwarf Prolific (*Early Bearing; Fertile; Præparturiens; Precocious*).—This is a dwarf-growing, early-bearing variety, which I have seen produce fruit when not more than two and a half to three feet high; and a tree in my possession, not more than six feet high, bears abundant crops of good-sized and well-flavoured fruit. This variety reproduces itself from seed.

Early Bearing. See *Dwarf Prolific.*

Fertile. See *Dwarf Prolific.*

French. See *Large Fruited.*

Highflyer.—This variety ripens its fruit considerably earlier than the others, and is of good size and well flavoured.

De Jauge. See *Large Fruited.*

Large Fruited (*à Bijoux; Double; French; de Jauge; à Très Gros Fruit*).—Nuts very large, two or three times larger than the common walnut, and somewhat square or oblong in shape. The kernel is small for the size of the nut, and does not nearly fill the shell. It requires to be eaten when fresh, as it very soon becomes rancid.

The shell of this variety is used by the jewellers for jewel-cases, and is frequently fitted up with ladies' embroidery instruments.

Late (*Tardif; Saint Jean*).—The leaves and flowers of this variety are not developed till near the end of June, after all danger from frosts has passed. The nuts are of medium size, roundish, and well filled; but they do not keep long. The tree is very productive, and is reproduced from the seed.

À Mésange. See *Thin Shelled.*

Præparturiens. See *Dwarf Prolific.*

Precocious. See *Dwarf Prolific.*

Saint Jean. See *Late.*

Tardif. See *Late.*

Thin Shelled (*à Coque Tendre; à Mésange*).—Nuts oblong, with a tender shell, and well filled. This is the best of all the varieties.

À Très Gros Fruit. See *Large Fruited.*

Yorkshire.—This is of large size, but not so large as the Large Fruited. It fills and ripens well.

HORTICULTURAL SOCIETY'S COMMITTEES.

FRUIT COMMITTEE.

A Meeting of the Fruit Committee was held on Tuesday, the 12th inst., at the Rooms, 8, St. Martin's Place. Mr. Charles Edmonds, Vice-Chairman, in the chair.

There was a very large attendance of the members, and the time of the Meeting was chiefly occupied with the consideration and adoption of rules for the regulation of the Local Committees which it is intended to form in various districts throughout the country. By the formation of these Committees, it is expected that much valuable information will be obtained respecting the numerous varieties of fruits which are at present confined to certain districts, and which are only possessed of local reputation. They will also be the means of collecting an amount of particulars relative to the circumstances under which fruits are cultivated in different parts of the country, which cannot fail to be highly valuable.

A prize of *one pound* was offered at this Meeting for the best Seedling Strawberry, for which there were two competitions. Messrs. J. & E. Small, of Colnbrook, Bucks, sent two baskets of *Ingram's Prince Arthur Strawberry*, a medium-size conical fruit, of a pale scarlet colour, firm flesh, which is white throughout, and with a marked Pine flavour, and fine piquancy. Mr. W. Prestoe, gardener to Sir Richard Bethell, Hackwood Park, Basingstoke, sent plants, in pots, of a Seedling unnamed, the fruit of which is medium-sized, of a dark-red colour, in the way of *Keens' Seedling;* but the fruit was so damaged by carriage, that it was impossible for the Committee to form any opinion upon its merits. The prize was awarded to *Ingram's Prince Arthur.* This, we think, will prove an excellent Strawberry. It is evidently of the *Old Pine* race, having the glossy neck and Pine flavour of that variety, though perfectly distinct from it. It was requested that both of the above varieties be again exhibited at the next Meeting, on the 10th of July, when the same prize for Seedling Strawberries will be repeated among others for other kinds of fruit.

N. Lockyer, Esq., sent several specimens of Lemons grown against a wall at his residence near Plymouth. The tree has been in bearing ever since 1822, and is protected with glass during the winter. The fruit was very fine and quite equal to those imported from the South of Europe.

FLORAL COMMITTEE.

This Committee met on Thursday, the 14th inst., at the Rooms, 8, St. Martin's Place. J. J. Blandy, Esq., V.P.H.S., in the chair, and the Meeting was numerously attended.

Mr. Keynes, of Salisbury, sent a Seedling Fuchsia, *Magna multiflora*, with white reflexed sepals, and dark crimson petals; but it was not considered sufficiently distinct from others in cultivation to merit special notice.

Mr. John Standish, of Bagshot, sent *Azalea amœna hybrida*, a variety obtained between *A. amœna* and *A. lateritia*, which is so hardy as to have stood in the open ground for the last two

winters. It is a profuse bloomer, and the flowers are of a beautiful bright rose colour. It received a Label of Commendation. *Rhododendron Athenæ*, a large truss, with large, expanding, white flowers, of fine substance, and with a violet tinge on the edges of the segments; the upper segments thickly spotted with ochreous spots. This, also, received a Label of Commendation. The same gentleman also exhibited the following:—A species of Melastoma, with racemes of insignificant white flowers, was considered to be unworthy of cultivation. *Cyathea Smithii*, a fine tree Fern, newly introduced from New Zealand, received a first-class certificate, as did also *Cyathea Cunninghami*. Both of these are beautiful tree Ferns, and will succeed in an ordinary greenhouse or conservatory.

Messrs. Carter and Co., of Holborn, sent cut flowers of two varieties of *Double Columbines*. One of which was of a dark purple colour, and the other carnation striped. The latter is very pretty.

Mr. Cutbush, of Highgate, sent a Begonia; and Mr. Catt, of Welwyn, a *Scarlet-flowered Dwarf Tropæolum*, both of which were requested to be brought forward at a subsequent Meeting. This dwarf Tropæolum was supposed to be very similar to one called *Brilliant*. But there appear to be two Tropæolums *Brilliant*. One a variety of *T. Lobbianum* and the other of *T. majus*. It was to the latter that Mr. Catt's variety was considered alike.

Mr. Daniels, gardener to C. E. Ruck Keene, Esq., sent flowers of *Bougainvillæa spectabilis*; and Mr. Baines, gardener to H. Michels, Esq., of Summerfield, Manchester, flowers of *Dendrobium Falconeri*, to both of which Special Certificates were awarded.

Messrs. E. G. Henderson & Son, of Wellington Road, sent a plant of *Hydrangea cyanea*, having a pale rose calyx, blue flowers, and woolly leaves; it is in the way of *H. Japonica*. *Gesnera gloxiniæflora*, a free-blooming plant, with large, bright red flowers.

LEEDS HORTICULTURAL AND FLORAL FETE.

This, on the 29th and 30th of May, was got up chiefly by Mr. T. D. Appleby, the son of our contributor. By his exertions, assisted by a committee of gentlemen, the Show was managed very creditably.

The Exhibition was held in two spacious marquees, placed in the grounds of the picturesque ruins of Kirkstall Abbey. A more appropriate situation for such an exhibition is not to be found in Britain.

About £120 were offered in prizes; and several eminent nurserymen, including Mr. Cole, of Manchester, the once great exhibitor from Dartford, in Kent, and Mr. Edwards, of York, competed at the Exhibition; as did also many of the gardeners to the local gentry.

Mr. Coles' plants, as might be expected, were unique specimens of horticultural skill; and Mr. Edwards's Geraniums were well grown and beautifully bloomed. Mr. Eastwood's Geraniums were also beautiful specimens for a maiden exhibitor, showing that the examples of those charming plants exhibited at the same place by Mr. C. Turner last year had been of service to the local growers. Mr. Eastwood's plants ran Mr. Edwards a close race, they were such handsomely formed plants and so well bloomed. Had the Show been a week later, it is very doubtful which of them would have obtained the first place.

In giving a report of a floral fête, we opine that the names of the most remarkable plants will be useful to those persons forming a collection, enabling them to select and order from the dealers such plants as they have convenience or a desire to grow.

Mr. Cole, of Manchester, was the largest contributor. We will go through his collection first. *Theophrastia imperialis*.—It has long, oval, light green leaves, three feet in length and nine inches in breadth. This is a truly noble exotic tree. *Hippomane spinosa*.—This may be fairly named the Thistle tree. It has long narrow leaves, edged with most formidable-looking spines. *Ficus Leopoldi* (King Leopold's Fig Tree).—Related to the well-known India-rubber tree, only it has much larger leaves. *Sansaviera Javanica*.—This plant has no stem, each leaf springs from a rhizome, or rootstock, close to the soil. Many of the leaves were fully five feet long; they are beautifully barred with silvery white on a green ground. *Croton angustifolium*.—A beautiful and elegantly drooping tree, with long narrow leaves striped with gold. *Aphelexis macrantha purpurea*.—Four feet high, three feet through. An everlasting flower, and a very fine specimen. *Leschenaultia biloba nana*.—This plant bears a true blue-coloured flower. It was a good well-bloomed specimen. *Polygala cordata*.—Three feet high and two feet through. A good plant, well grown. *Ixora coccinea*.—An old inhabitant of our stoves. This specimen had eleven heads of scarlet flowers. *Pteris argyræa*.—A silvered Fern. This new and charming Fern has a broad band of silver in the centre of each leaflet.

Mr. Dymont, gardener to W. G. Joy, Esq., Headingly, sent *Caladium Chantinii*.—Leaves heart-shaped, a foot long and nine inches broad; the centre strongly coloured with crimson, shaded to the margin with green, and blotched with spots of white. *C. argyrites*.—A real gem of a dwarf habit. Leaves arrow-head-shaped, and beautifully spotted with various sized blotches of silvery white. *Aphelandra Leopoldi*.—A stove plant, well grown. Leaves light green, with every vein of a pure silver colour. *Gesnera*.—A seedling allied to *Cooperii*, but with much larger flowers and stronger stems. The plant had eleven spikes, and very many flowers on each spike of a bright scarlet colour. It is a real acquisition.

Mr. Hamblin, gardener to W. Smith, Esq., Roundhay. He had a fine specimen of the new *Begonia Marshallii*—a plant with oblique-oval leaves, marked in the middle with a broad silvered band on an olive-green ground. *Caladium marmoratum*.—This plant has footstalks three feet long, bearing on the top leaves heart-shaped, a foot long and six inches broad, spotted with light green and white.

Ferns.—Mr. Eastwood, gardener to F. Tetley, Esq., Headingley, exhibited *Cheilanthes elegans*, *Cheilanthes Ellisiana*, and *Nothochlæna tomentosa*. These were nice equal-sized plants, the foliage beautifully divided. Nothing can exceed these three species in beauty.

Azaleas.—Mr. Cole's collection of six, contained *Extrania*, a bright deep rose colour; *Vesta*, a pure white, of good form; *Juliana*, orange scarlet, a well-formed flower; *Eulalie Van Geert*, good-formed flowers, with a deep blotch in the centre of the upper petals.

Pelargoniums.—Mr. G. Edwards's collection obtained the first prize. Well-grown plants, smaller than the competing collection, but better bloomed. The following were the best in quality:—*Roi de Feu*, a dazzling scarlet; *Madame Place*, white, delicately pencilled and blotched with maroon; *Louise Miellez*, a deep-coloured French variety; *Una*, a clear pure white with deep blotch; *Magnet*, a deep scarlet ground, with maroon blotch.

Mr. Eastwood's collection of Fancy Varieties, first prize. Large, well-bloomed plants. The best were—*Evening Star*, a dark variety; *Reine de Français*, a light ditto; *Queen of Roses*, a good rose.

THE FLORAL HALL.

Although the Floral Hall that has been erected adjoining the Italian Opera in Covent Garden cannot be regarded as an institution of horticulture, and although arrangements have not yet been made for its becoming the great floral mart it was originally intended to be, the display of flowers which was exhibited there last week was of such a nature as to call for an especial notice from us. It is not that the Exhibition was superior, or even equal by a long way, to those we are accustomed to see in the usual horticultural places that we are induced to notice it; but because of the extraordinary effect which this Exhibition has shown to be possible with materials of the commonest description. Were it for no other purpose than to serve as a study for those who are engaged in floral decorations, we could wish that such a place as this would become permanent.

The Floral Hall is an immense place, built in the Crystal Palace style of iron and glass, and is contiguous to the Italian Opera. It is of oblong shape, 222 feet long and 75 feet wide; the roof is vaulted, 55 feet high, and supported by ten cast-iron columns, the west end being surmounted by a capacious dome 105 feet high. In the centre of this great parallelogram was placed an enormous conical stage 30 feet high, and covered with *Calceolaria aurea floribunda* and *Geranium Alma* arranged in longitudinal bands, which produced a very pleasing effect. From either side of the base of this cone issued two low stages, each fifty feet long, running east and west, the former furnished by Messrs. E. G. Henderson & Son, Wellington Road, with fine specimens of Palms, Caladiums, Altingias, Rhopalas, Begonias, Stadmannias, and other ornamental-foliaged plants; the latter by Messrs. Arthur Henderson & Co. with standard Bays and Myrtles, Altingias, Dacrydiums, Caladiums, Nepal Rhododendrons, Cyanophyllums, &c. At the extreme east end rose an almost perpendicular stage 50 feet high, and occupying

almost the whole width of the Hall, forming a bank of floral beauty. It was composed of plants in 48-pots arranged in stripes running from the base to the top. These stripes consisted of a centre of purple Intermediate Stock 10 pots wide; and on either side of this the following:—Mignonette, 5 pots wide; Intermediate Stock, 3 pots; Musk, 5 pots; Stock again, 3 pots; Mignonette, 5 pots; Stock, 8 pots. This was repeated on the other side of the centre, and the whole was edged with white Intermediate Stock, 2 pots wide. The effect of this, flanked with handsome standard Bays from Mr. Veitch, of Chelsea, was a beautiful subdued mass of colour. At the extreme west end of the building rose three half-cones, the centre one 30 feet high, formed of Scarlet Geraniums, and one on each side of it 25 feet high, both covered with Hydrangeas. The effect of these was very beautiful. The whole of the south side of the building was occupied with a bank of Rhododendrons and other flowering American plants, sent by Mr. Standish, of Bagshot; Mr. Baker, of Wendlesham; Mr. Noble, of Sunningdale; and Messrs. Milne & Co., of Wandsworth Road. Among Mr. Standish's plants we observed several fine specimens of those beautiful tree Ferns *Cyathea Smithii*, *C. Cunninghami*, and *Todea pellucida*, he has recently introduced from New Zealand. The north side was occupied by Messrs. Lane, of Berkhampstead, with fine specimens of Azaleas and Roses in pots in full bloom; and Messrs. Jackson, of Kingston, with miscellaneous plants. We must not omit to mention a mound of bouquets at the west end which were enveloped in their lace-paper wrappers.

THE ROSE OUT OF DOORS.

(*Continued from page* 171.)

It now only remains to give a list of the best Roses. I shall give them in the classes as they are arranged in the best catalogues, describing them in decided colours.

Provence.—*Rose colour*, Old Cabbage, Fringed. *Blush*, Reine de Provence. *White*, Unique Panaché, White Unique.

Moss. — *Pink*, Admiral Brongniart, Duchess d'Istrie, Mademoiselle Rosa Bonheur, Latone. *Deep rose*, Common Moss, Gloire de Mousseuses, Marie de Blois, Prolific. *Purple*, Aristides, Captain Ingram, Vandael, William Lobb. *Crimson*, Baron de Wassenaer, Celina, Damask, Frederick Loulié, Lanei, Rouge de Luxembourg. *White*, Comtesse de Murinais, Reine Blanche, Unique de Provence, White Bath. *Blush*, De Candolle, Madame Alboni, Princess Alice, Princess Royal.

Hybrid Provence.—*White*, Princess Clementina, Blanchefleur, Comtesse de Sequi. *Blush*, Aspasie, Devigne, Madame Audot. *Cream*, Comte Plater. *Rosy pink*, Eugenie Dessauzais. *Deep rose*, Gloire de France, La Ville de Londres. *Buff*, Pauline Garcia.

Damask.—*White*, Madam Hardy, Madame Zoutman. *Deep rose*, Duke of Cambridge, La Ville de Bruxelles. *Lemon*, Madame Stolz.

Rosa alba.—*White*, Madame Legras, St. Germains, Princess de Lamballe. *Blush*, Etoile de la Malmaison, Sophie de Marseilly. *Rosy flesh*, Félicité. *Pink*, La Seduisante Lucrece.

French.—*White Striped*, Œillet parfait, Perle de Panachés. *Deep rose*, Aurélie, Lamarque, Eclat des Roses, Letitia, Rose Amiable, Napoléon, Transon, Goubault. *Crimson*, D'Aguesseau, Eugenie, Napoléon, Général Bertrand, Gloire de Colmar, Grandissima, Shakspere, Ohl, Pierce, Jaussens. *Purple*, Boule de Nanteuil, La Muskowa. *Bright red*, Rien ne me Surpasse. *Striped*, Bizarre, Marbrée, Tricolor de Flandres.

Hybrid China.—*White*, Madame Plantier. *Blush*, Comtesse Lacepede, Triomphe de Guerin. *Pink*, Leopold de Beaufremont. *Rose*, Blairii, Général Changarnier, Juno. *Crimson*, Brennus, Chénédolle, Fulgens, Général Jacqueminot, Triomphe d'Angers, Vivid.

Hybrid Bourbons.—*Silvery blush*, Glorieux. *Fleshy pink*, Coup d'Hebe. *Rose*, Charles Duval, Charles Lawson, Las Cases, Paul Perras. *Crimson*, Cimabue, Comte Boubert, Frederick II., Great Western, Paul Ricaut, President Mole.

Austrian Brier.—*Yellow*, Harrisonii (Persian), Williams's (double).

Hybrid Perpetuals.—*White*, Doctor Henon, Louise Magnan, Madam Rivers. *Pink*, Adelaide, Fontaine, Auguste Mié, Comtesse d'Orleans, Duchess of Sutherland, Ernest Bergmann, Général Brea, Louise Odier, Louise Peronny, Madame de Bessé, Madame Domage, Madame Heraud, Madame Knorr, Madame Place, Madame Vidot, Mademoiselle Alice Leroy. *Deep rose*. Comte de Nanteuil, Comtesse Vaillant, Baronne Prevost, Docteur Julliard, Docteur Rushpler, Duchesse d'Orleans, Général Pélissier, Joseph Decaisne, La Reine, La Ville de St. Denis, Léon Haimann, Louis Buonaparte, Madame Cambacères, Madame Hector, Jacquin, Mademoiselle Godard, Marie Thierry, Marquise de Murat, Mathurin Regnier, Monsieur de Montigny, Sir John Franklin, Souvenir de la Reine d'Angleterre, Souvenir de Leveson Gower, Thomas Rivers, William Griffiths, William Jesse. *Crimson*, Arthur de Sansalles, Bacchus, Baronne Hallez, Cardinal Patrizzi, Duchess of Norfolk, Evêque de Nîmes, Géant des Batailles, Général Jacqueminot, General Simpson, Gloire de France, Gloire de Lyons, Jules Margottin, Lafontaine, Lord Palmerston, Lord Raglan, Madame Masson, Paul Dupuy, Prince Léon, Triomphe de l'Exposition, Triomphe de Paris. *Flesh colour*, Duchesse de Montpensier, Général Cavaignac, Madame Hilaire, Madame Philip, Queen Victoria, Rosine Margottin. *Carmine*, Général Castellane, Marie Portemer, Reveil, Souvenir du petit Corporal.

Perpetual (Moss).—*White*, White Perpetual. *Pink*, Madame de Staël, Madame Edouard Ory, Oscar le Clerc, Pompon Perpétuelle, Raphael, Reine d'Anjou, Salet. *Rose*, Impératrice Eugenie, Ma Ponctué, Marquis de Vaubrun. *Crimson*, Abiel Carriére.

Bourbons.—*White*, Acidalie, Julie de Loyns. *Pink*, Aramis, Colonel Foissy, Edouard Desfosses, General Blanchard, Madame Tripet, Queen of the Bourbons, Viscomte de Cussey. *Flesh*, Caroline Riquet, Madame Angelina, Mademoiselle Joséphine Ærmont, Souvenir de Malmaison, Madame Comtesse. *Deep rose*, Agar, Beauté, Lyonnais, Henry Clay, Impératrice Eugenie, Madame Cousin, Marianne, Marquis de Balbiano, Miroir de Perfection, Sir Joseph Paxton. *Bright red*, Camille de Châteaubourg, Docteur Lepretre, Flechier, Gloire de Paris, Henry Lecog, Omar Pacha, Pigneron. *Crimson*, Aurore de Guide, Bouquet de Flore, Comte Brobrinsky, Comte Montijo, Ferdinand Deppe, François Henrique, George Cuvier, La Quintinie, Paul Joseph, Prince Albert, Reveil, Souchet, Surpasse, Comice de Seine et Marne. *Purple*, Adelaide Bougère.

China.—*White*, Lady of the Lake, Mrs. Bosanquet. *Blush*, Duchess of Kent. *Rose*, Archduke Charles, Elise Florys, Fénélon, Madame Breon. *Carmine*, Citoyen des Deux Mondes, Cramoise Superieure, Fabvière. *Crimson*, Henri Cinq, L'Eblouissante, Louis Philippe d'Angers, Lucullus, Marjorlin, Prince Charles, Triomphe de Gand.

Tea-scented.—*White*, Clara Sylvain, Madame Maurin, Madame Sylvestre, Melanie Willermoz, Niphetos. *Fawn*, Abricoté, Auguste Vacher, Gloire de Dijon, Madame de St. Joseph, Moiré, Safrano, Melanie Oger, Pauline Plantier. *Salmon*, Auguste Oger, Jeannie Deans, Laurette, La Sylphide, Nisida, Souvenir du 30 Mai. *French White*, Amabilis, Blanche de Solleville, Charles Reyband, Devoniensis, Le Caméléon, Leontine de Laporte. *Pale Yellow*, Diana Vernon, Elize Sauvage, Le Pactole, Louis de Savoie, Madame Jacqueminot, Smithii, Sombrieul. *Yellow*, Viscomtesse de Cases, Yellow or Jaune. *Rose*, Adam, Bougère, David Pradel, Eugène Desgaches, Goubault, Madame de Vatry, Mareschal Bugeaud, Mirabile, Souvenir d'un Ami, Triomphe de Luxembourg. *Flesh*, Duchesse d'Orleans, Général Tartas, George de France, Madame Bravy. *Crimson*, Buret, Souvenir du David, *Blush*, Baronne de Savigny, Belle Allemande.

Noisette.—*White*, Aimée Vibert, Caroline Marniesse, Claudia Augustin (P*), Miss Glegg, Triomphe de Bolwyller (W†). *Pale Yellow*, Adelaide Pavie (P), Augusta (W), Lamarque (W), Narcisse, Solfaterre (W). *Deep Yellow*, Cloth of Gold (W). Madame Schultz (P), Isabella Gray, Triomphe de Rennes. *Salmon*, Jaune Desprez (W), Ophirie (W), Polonie Bourdin. *Rose*, Camellia Rouse (P), d'Espelais (P), Du Luxembourg (P). *Crimson*, Eclair de Jupiter, Fellemberg. *Blush*, La Biche (P). *Purple*, Sir Walter Scott (P). *Pink*, Triomphe de la Duchère (P).

Climbing.—*Banksians* are best planted against high walls.—Fortuniana, white; Jaune, serin yellow; White Banksian; Yellow Banksian. *Ayrshire*.—Alice Gray, cream; Dundee Rambler, white; Ruga, pale flesh; Splendens, pure white. *Boursault*.—Amadis, crimson; Gracilis, pink.

Hybrid Climbing.—Rivers' Queen, purplish crimson; Madame d'Arblay, white. *Rosa multiflora*, Laure Davoust, pink; Russelliana, crimson. *Rosa Sempervirens*.—Adelaide d'Orleans, rose; Donna Maria, pure white; Félicité Perpetuelle, cream; Myrianthes, rose; Reine de Français, vivid rose. *Rosa rubifolia*.—Altoniensis, rose; Beauty of the Prairies, bright pink; Ranunculiflora, blush; Superba, pale pink. T. Appleby.

* (P) Pillar Roses. † (W) Wall Roses.

TO CORRESPONDENTS.

Hose Underground (*R. A. L.*).—For underground piping we should prefer cast iron or earthenware pipes, according to circumstances. Gutta percha is not calculated for such an employment, and must be liable to decay. If you require the hose for supplying the water from the underground-pipes, then we recommend vulcanised Indian-rubber. It is much more flexible and manageable than Gutta percha.

Red-leg Weed (*Inquirer*).—The plant you call *Red-leg*, is *Polygonum bistorta*, or Bistort, a noisome weed in most meadows and pastures. There is no effectual mode of eradicating it, except by breaking up the pasture and thoroughly cleaning the ground of its perennial roots, which are large and tortuous. Wherever it occurs the land should be pared and burned and thoroughly drained.

"J. V.," relative to Marvel of Peru, and "An Irish Subscriber," relative to Anœctochili, will be answered next week.

Cottage Gardener by Post (*Inquirer*).—The Cottage Gardener is posted from the office to all subscribers on the day of publication. The annual subscription, 17*s.* 4*d.* Half-yearly and quarterly at proportional rates.

Worms in Pots of Ferns (*F. C. F. G.*).—You may water the soil with lime water. Half a peck of freshly slacked lime is enough for twenty gallons of water. Stir the lime into the water some hours before using the water, and only use this when quite clear. The papers you refer to have not been published in a separate form.

Wardian Case (*L. J. L.*).—At what temperature it should be kept depends upon the plants within it. If greenhouse plants, 45° at night, and from 55° to 65° by day, will be about a proper range. Take off the glass daily.

Names of Plants (*W. C.*).—Your plant is the *Sempervivum ciliatum*, the Ciliated Houseleek. You would have prevented much trouble if you had sent a lower leaf of this plant. The hairs round the edges of the leaves would have determined the species at once. (*Keele Hall Gardens*).—The plant from Ireland is *Andromeda polifolia*. (*J. Aston*).—It is impossible to be certain from such sprigs, but we believe No. 1. is *Lantana stricta*, and No. 2. *Spiræa Japonica*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

June 20th. Thorne. *Sec.*, Mr. Joseph Richardson.

June 29th. Driffield. *Sec.*, Mr. R. Davison. Entries close June 23rd.

June 29th and 30th, July 2nd and 3rd. Sheffield. *Sec.*, Mr. W. H. Dawson, Sheffield. Entries close June 14th.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

July 19th. Prescot. *Sec.*, Mr. J. Beesley. Entries close July 7.

August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

HIGH FEEDING FOR FOWLS AND ITS CONSEQUENCES.

I thank you very truly for your good advice regarding my fowls. When I wrote to you I was not aware of the cause of their loss of feathers, although observing that one or two of them occasionally deprived a neighbour of a few; but since, according to your suggestion, they have been denied my plate of table scraps and the cook's contributions, they have shown me how truly you described their case, by the most cruel conduct towards each other. We are constantly distressed by the cries of the sufferers, and one fight might have proved fatal but for our interference.

Their process of plucking usually makes no wound, but the feathers extracted are eagerly devoured.

Perhaps you will be so good as to inform me how long I ought to persevere in the low diet; or whether (as the fowls look far worse than before) I should rather take "Œ's" melancholy view of the case, and give up my pets as incurable. Some *must* be executed next week in pity to the rest. Others in solitary confinement will await your opinion, should you favour me with a reply.

The health of the fowls seems not so good since the change of diet, and they have almost given up laying. This latter is not material, if you think there is still hope of improvement in their behaviour.

If I should obtain other and better-mannered birds next spring, should they be kept invariably without animal food of any kind? or ought worms and garden insects to be supplied as far as practicable?

My young chickens have always been particularly delighted with the table scraps, or a bone occasionally. Is this fare to be avoided as dangerous in their case also?—Mrs. Dorking.

[To Mrs. Dorking.

Madam,—Some time since we took a sickly child to an eminent medical man. "I can see," he said; "general disorganisation; loss of appetite, yet craving. No desire for proper or wholesome food; picks up scraps of paper, sealing-wax, string, thread, rice, and so on." "Yes, sir." "Child has been improperly fed." "Think not, sir." Obliged to admit she had been allowed to eat freely of pastry, occasionally to have a glass of wine, and to have constant access to cake and biscuit. He not only prescribed medicine, but ordered a "regime" he laid down to be strictly followed. "But, sir," asked we, "is the poor child always to be subject to this?" "Only till she is cured," was the answer. "And is she always to be debarred a glass of wine and a piece of cake?" "By no means; but let her have them in moderation, and at proper times." The child is well. We assure you we think the case was worse than your fowls. It is as true of fowls as of Pheasants, that they are carnivorous, and the extraordinary fact that one will stand quite still while the other eats it is perfectly true. Whether it arises from morbid appetite or from anger, the result is the same as soon as one has tasted the other. The victim will choose a corner, and having thrust its head into it will stand still while the stronger eats all the skin off the head; then the back of the neck; then, oh! strange epicure! the oyster pieces of the back, and perhaps the tail as a *bonne bouche*. It is not, however, their nature to eat each other; but the appearance of a little raw spot, or of two or three young feathers, is too tempting to be resisted in certain conditions of health or body. Overfeeding and improper food have done the mischief.

All pampered animals are affected the same way. Many years ago we undertook for a very valued old lady friend to cure her pet dog. It was exceedingly fat, very short-breathed, had no appetite for anything but food that was previously repugnant to it. Poor Bijou would sniff at, and then turn away from a small piece of lamb-cutlet; a portion of the wing of a boiled chicken, with its accompanying butter, &c., was sniffed at, perhaps turned over, or drawn out of the plate, and left. The medical friend of the family declared it must die, and we undertook the cure. Be it known we like dogs as well as poultry, and we keep them. We laughed heartily at the very sorry figure poor Bijou presented when put down with ours. We think ours was first frightened. It then looked to see what was the animal we had brought, and when it found that it was a dog, it played all sorts of pranks, and turned it over and over again. If ever a dog cried Bijou did. We laugh at the recollection of it even now. As the poor obese tried to walk away our dog ran round and over him—we need scarcely add, he frequently knocked him down. Every time he was rolled over he gave a short snappish bark that said "don't" as plainly as it could; and when that was found of no avail, Bijou sat down in despair, and cried as well as he could. We called our dog away, and then this pampered animal, which often had chicken roasted expressly for its dinner, sought out and ate all scraps it could find of raw meat, &c., on which Greyhounds and Pointers had been fed. From the same cause and in the same way your fowls eat each other. Now for the cure.

Bijou was not fit for the kennel. He was put in a loose box. He looked for his accustomed velvet cushion, failing that he laid down on straw. He had water at his discretion, but no food. Next morning he did what he had not done for weeks, he wagged his tail; we were delighted to see he was going on well. During that day he several times noisily asked for food. We thought he would live for some time as bears are said to do during the winter, and, therefore, gave him nothing. The third day he jumped and gambolled to the length of his chain, moved thereto by the sight of a crust we held in our hand. In a fortnight he was lively and well. He played about with our dogs, and his coat that was beginning to bare in patches, was again growing all over his body. Cooked and delicate meat was bad food for this dog, it caused humours and surfeits. Meat of any kind, as a rule, is bad for your fowls, causing also humours and surfeit. In one the hairs, in the other the feathers suffer.

Bijou was treated as a dog should be, and he had no relapse. Neither will your fowls, unless you treat them as dogs. They are not provided with the means of mastication necessary for meat eaters. We will not, however, tell you either to kill your fowls, or to condemn them to solitary confinement. Still, feed sparingly and with cooling things. Be sure they have plenty of

green meat. Throw them bones now and then, but *cooked*, and with little meat on them. Avoid the semblance of any raw food, and you will, and may, keep your fowls.]

ESSEX AGRICULTURAL SOCIETY'S POULTRY SHOW.

This Show was held at Saffron Walden on the 12th inst., in Lord Braybrooke's park, and the poultry exhibited was very superior; but the rain, driving all day long, inflicted wet feet, soaked garments, hunger, and blank disappointment upon every visitor. Fowls of any age were admitted to all the classes.

The Judges were the Rev. Morton Shaw, Rougham, near Bury, and Mr. Twose, Halstead.

Dorking (Coloured).—First, G. Griggs, Romford, Essex. Second, Lady J. Cornwallis, Linton Park, Staplehurst, Kent. Third, R. Ambler, Stevenage, Herts. Highly Commended, J. Frost, Parham, Woodbridge, Suffolk. Commended, Sir T. B. Lennard, Bart., Belhus, Aveley, Essex; G. Griggs, Romford, Essex.

Dorking Cock (Coloured).—Prize, Sir T. B. Lennard, Bart. Commended, T. D. Green, Saffron Walden, Essex.

Spanish.—First, C. Atkins, Sewer Cottage, Thames Bank, Pimlico. Second, J. H. Craigie, Woodlands, Chigwell, Essex. Third, H. Dawson, High Street, Camberwell, Surrey. Highly Commended, J. H. Craigie, Woodlands, Chigwell, Essex.

Spanish Cock.—Not sufficient merit.

Game (White and Piles).—First, S. Matthew, Stowmarket, Suffolk. Second, T. Hill, jun., Brentwood, Essex.

Game (Black-breasted and other Reds).—First, T. Hill, jun., Brentwood. Second, S. Matthew, Stowmarket. Third, W. P. Boghurst, Frating Abbey, Essex.

Game (Duckwings).—First, W. P. Boghurst, Frating Abbey. Second, S. Matthew, Stowmarket.

Game Cock (Any colour).—Prize, W. P. Boghurst, Frating Abbey. Highly Commended, W. P. Boghurst; H. Evershed, Park Hall, Gosfield, Essex; Rev. T. L. Fellowes, Beighton Rectory, Acle, Norfolk. Commended, S. Matthew, Stowmarket.

Hamburgh (Golden-pencilled).—First, Rev. T. L. Fellowes, Beighton Rectory. Second, Mrs. A. H. Pattisson, Maldon.

Hamburgh (Silver-pencilled).—First, Rev. T. L. Fellowes, Beighton Rectory. Second, Mrs. A. H. Pattisson, Maldon.

Hamburgh (Golden-spangled).—First, not awarded. Second, Rev. T. L. Fellowes, Beighton Rectory.

Hamburghs (Silver-spangled).—First, Rev. T. L. Fellowes, Beighton Rectory, Norfolk. Second, Lady J. Cornwallis, Linton Park, Staplehurst, Kent.

Fowls of any other breed.—Prize, C. Punchard, Blunt's Hall, Haverhill (Bantam). Prize, J. H. Craigie, Woodlands, Chigwell, Essex (Brahma Pootra). Prize, T. P. Edwards, Lyndhurst, Hants (White-crested Black Polands). Highly Commended, Rev. T. L. Fellowes, Beighton Rectory, Norfolk (Black Hamburgh). Commended, A. G. Brooke, Woodbridge, Suffolk (Malay); J. Rumsey, High Street, Shadwell, London (Malay); C. Punchard, Blunt's Hall, Haverhill, Suffolk (Cochin China).

Turkeys (Norfolk or Black).—First, Sir T. B. Lennard, Bart., Belhus, Essex (Cambridge). Second, Miss J. Milward, Newton St. Loe, Bath (French).

Turkeys (Coloured or Grey).—No entry.

Single Turkey Cock (any colour).—Prize, Sir T. B. Lennard, Bart., Belhus, Essex. Highly Commended, H. Evershed, Park Hall, Gosfield, Essex (American).

Geese (Embden and White).—First not awarded. Second, H. Evershed, Park Hall, Gosfield.

Geese (Toulouse and Grey).—No entry.

Ducks (Aylesbury).—First, Sir T. B. Lennard, Bart., Aveley. Second, Lady J. Cornwallis, Linton Park, Staplehurst. Commended, W. P. Boghurst, Frating Abbey; G. Griggs, Romford, Essex; H. J. Peacocke, Stanford, Biggleswade.

Ducks (Rouen).—First and Second, C. Punchard, Blunt's Hall, Haverhill.

Ducks (of any other breed).—Not of sufficient merit.

BATH & WEST of ENGLAND POULTRY SHOW.

The Meeting of this Society took place this year at Dorchester, proving one of the most successful that has been yet held; and, notwithstanding the weather was the very reverse of satisfactory or tempting to out-of-door pursuits, the attendance of visitors far exceeded the anticipations of the Committee.

The inhabitants of Dorchester appeared thoroughly delighted with the visit of the Society; whilst an excellent brass band, evergreens, and banners in profusion, and in the evenings a general illumination, all added to the widely-spread pleasures of the day. In taking a walk through the tents appropriated to the especial use of the poultry, a glance only was sufficient to prove the same heartfelt care was then manifested for universal comfort that has ever marked the proceedings in this department of the Bath and West of England Society's Meetings.

The *Spanish*, as customary, took precedence, and certainly few poultry amateurs would have regretted an especial journey to Dorchester. Were their attentions strictly limited to Miss Rake's first-prize pen, we much doubt, indeed, whether even that notorious Spanish-yard ever yet contained a more generally perfect trio. The cock was, indeed, a most extraordinary proof of how much may be attained by judicious breeding. The second and third prize pens of Messrs. Wright and Fowler, though compelled to take the position just named, were certainly quite equal to most of our first-prize birds at the generality of exhibitions. In *Dorkings*, both Grey and White had, unfortunately, but one class between them, always a very severe drawback for the latter variety. Still, even with this disadvantage, it will be seen by reference to the prize list we published last week, Mrs. Fookes maintained a position among the successful—a proof that her birds were, for Whites, of no common merit. The Marchioness of Winchester and Mr. Wakefield took, relatively, the first and second prizes with Grey birds of excellent quality. It struck us, however, that the plumage of most of the class was scarcely in so good exhibition trim as we are accustomed to meet with. In *Cochins*, Mr. Tomlinson, of Birmingham, won at a canter, with a pen of birds quite equal to any that gentleman ever yet exhibited, although fresh specimens. The cock and one hen are, indeed, marvellous for character and beauty, nor do we think for clearness of colour throughout it is possible to surpass them. Mrs. Fookes, Mr. Fowler, and Mr. Ford, also showed first-rate specimens. In *Game* fowls, of all varieties, the competition was a hard one for the winners, many being run so closely that very careful handling of every bird in the respective pens was the only safeguard on the part of the Judges by which to arrive at a satisfactory determination. Black-breasted Reds, Brown Reds, Duckwings, and Blacks, being all especially commendable. The *Malays* were an extraordinarily good class; and, although Pencilled *Hamburghs* of both colours competed together, as was the case likewise with Spangled (a regulation by-the-by we hope to see amended another year), the entries were numerous, and the competition excellent. In the Pencilled varieties, the well-known specimens bred by Mr. Archer, of Malvern, but now the property of Mr. Kerr, of Worcester, took easy precedence, and were, as is customary at all places they visit, an object of especial regard to the public. The Golden-spangled proved a close run between Messrs. Lane and Worrall, both pens being shown in lovely feather. The Black *Polands* were not so perfect as the Silver-spangled; than the latter we have rarely seen better. In the "distinct variety class" were some of the best *Rumpless*, and also *Silky* fowls we ever met with; capital *Brahmas*, and White *Spanish*, besides very commendable *Andalusians*. But the pride of the class, and, indeed, the greatest attraction in the Show throughout, was a pair of most extraordinary "Hybrids," the production between the common fowl and Guinea Fowl. It is almost impossible to describe them, but at first sight the resemblance they bore, in *size and carriage*, to the Curassow was remarkable. As by the regulations of the Society, a *pair* only of birds could not receive a premium (all pens containing three specimens), the Judges, Messrs. Andrews, Cottle, and Hewitt, very strongly recommended to the favourable attention of the Committee these hitherto-unseen examples of "crossing" between birds naturally so hostile and irreconcilable, as being worthy of an additional prize.* We understand, with such a recommendation, the request was at once conceded. The *Chicken* classes (the very unfavourable spring considered), were good.

The sweepstakes for *Single Cocks* were excellent, whether Game, Spanish, Dorkings, Cochins, Malays, or Game Bantams. The Game *Bantams* were universally good; but the Sebrights, as a whole, did not prove equal to those of former Meetings.

Ducks, *Geese*, and *Turkeys*, were well represented; and the *Pigeons* throughout were most covetable.

Congratulating the managers on the success of the past Meeting, and anticipating an equal approval by the public, we doubt not the next Meeting, to be held at Truro, will be as well supported.

RAILWAY CARRIAGE and the DORCHESTER SHOW.

The South Devon, Bristol and Exeter, and other railways, conveyed Poultry *to and from* the Dorchester Exhibition, *free* of any charge whatever. May the other lines, at other Poultry Shows, follow (or, at least, partially) the noble and generous example thus set them. *Then* poultry fanciers would not be so few and far between as they are at present. I hope next year to

* R. Rawlins, Esq., Whitechurch, Hants, had a brood from a similar cross.

see the prizes more evenly divided—such as, 1st prize, £3; 2nd prize, £2; 3rd prize, £1, like the Crystal Palace. What a manifest disparity between £4 and £1! There is also great room for improvement in the catalogues. The numbers of the pens are not given in the prize list.—An Exhibitor.

NATURAL HISTORY.

RED-LEGGED PARTRIDGES.

Being anxious to have some of these beautiful birds about small grounds, and pleasure gardens, we are told on inquiry they will not remain in any of the northern or western counties. Can any of our readers give us any information?

THE VIRGINIAN NIGHTINGALE—VIRGINIAN QUAIL—LIGURIAN BEES.

In common with a large portion of your readers, I see with great pleasure that you have lately opened your columns to questions on natural history, more especially to those connected with ornithology. This is a great boon to many, who, like myself, love the country and its pursuits, and who are compelled by business and other "circumstances over which they have no control," to reside in town. To such your weekly appearance is a strong link binding them to all their early tastes and predilections, and forming on the Wednesday morning's breakfast-table not the least pleasant part of the spread.

One of your correspondents has lately written advocating the claims of the Virginian Nightingale. On reading his letter I purchased a pair, and was much pleased with them. I am afraid, from what I have as yet noticed of them, that they are not suited to our country and climate sufficiently ever to become naturalised here. Their plumage is much softer than any of our wild birds, and they appear delicate and very susceptible of disease of the lungs. I am told a large portion of those imported die during their first winter. However, it must be admitted they are handsome, sprightly birds, and for an aviary they have one great merit—they are seldom or never seen crouching about, but are generally flying backwards and forwards, and up and down, from perch to perch.

A stranger, whose claims upon our notice I am inclined to support, is the Virginian Quail, a bird but little known, but which only requires to be known to be appreciated—easily domesticated, a free breeder, delicious eating, and neat in plumage; in size rather larger and longer on the leg than the common Quail; plumage a chocolate brown on the back, with the breast-feathers delicately pencilled in black and white. The male has a black stripe running the length of the head on each cheek. The female has it in yellow. They lay freely; and as a proof that they are easily reared, I may mention that in the Zoological Gardens at Antwerp there were a good many reared last year, and also some the produce of a hen Virginian and cock Californian Quail. They are hardy and free feeders, not at all particular as to diet, and stand our winters well. They fly very swiftly, and have a very peculiar and melodious call, which, however, you seldom hear, except when there is a change in the weather. Just before a storm or fall of rain these birds will stand with neck outstretched and call loudly, seeming all the time restless and excited. I think they have been known to breed in a wild state in the Lothians, but of this I am not sure.

Leaving the birds for the bees. I was told about a month since at Weimar, by an old bee-keeper, that in two generations after the introduction of the Ligurian queen all traces of the cross would be lost, and that the produce would return to the old stock. Can any of your readers say if this is so, and oblige?—Rosemary.

HYBRIDISING OF BEES.

There has been some discussion in these pages on the hybridising of honey bees by mixing different species of the insects. Those who have spoken on the subject seem to think that this can be done with as much ease as gardeners rear new varieties of Calceolarias; but they appear to overlook the fact that the offspring of two animals of different species, and perhaps plants of distinct species, are, like mules, invariably unproductive. It may be superfluous to mention that this is the grand check, most wisely ordained to prevent the confusion of the species; which fact alone suffices to refute the erroneous theory of the transformation of the species, which led to the conclusion of man having been originally a monkey. No. The same unerring law that governs the higher class of animals is equally true in the lower, even in the most minute insect: therefore it is useless to talk of new species of honey bees being bred by their queens, or females, meeting with drones, or males, of other distinct species. Otherwise, how is it that none of our wild bees ever mix or produce new ones? Their habits are similar to each other, as those of the honey bee are to those of the Italian or Alp ones, of which so much has been said of late; but, as far as I have traced the schemes adopted to introduce them, they seem to have no practical result. However, as some of the writers alluded to profess to deal in fecundated foreign queen bees, it is but natural for any one before purchasing to require some proof or warrant. This may also help to throw some new light upon the hidden part of the history of the insects. I may further remark, that if, according to the common belief, this happens in the air, it would be useless to purchase an Italian queen bee which had not been the head of a stock or of a fresh swarm.—J. Wighton.

[If Mr. Wighton were in Devonshire I should have much pleasure in showing him working bees of every gradation of colour, from the purest Ligurian, so yellow as easily to be mistaken for a wasp by a casual observer, down to the very dark brown of the ordinary honey bee. I could also prove to him that there is little or no enmity between the two species, but that on the contrary they readily fraternise and dwell peaceably together in the same hive. Taking these facts in conjunction with the testimony of Dzierzon and the apiarians of Germany, as well as the positive evidence of M. Hermann, I fear there is no room for doubt that the Ligurian will only too readily hybridise with the common bee, and that queens thus hybridised are perfectly capable of propagating a mixed race. I have certainly spoken of this cross-breeding as being likely to produce a *new variety* of the honey bee; but I have never hinted at the production of "*new species*."

Whilst on this subject I may mention a doubt which has often occurred to me, and which I should be glad to have resolved by some of the scientific correspondents of The Cottage Gardener:—Is *Apis Ligustica* really entitled to rank as a distinct species from *Apis mellifica*, or should it not rather be considered merely a variety of the same species?

Although Mr. Wighton requires some "proof or warrant" that my Ligurian queens will really be fecundated, I fear I can only repeat what I have before stated—that none will be despatched until they have proved themselves fertile by actual egg-laying, and that no precaution which may tend to insure their being impregnated by true Ligurian drones will be omitted by—A Devonshire Bee-keeper.]

OUR LETTER BOX.

Loxia Cardinalis.—I was induced, by an article in No. 608, page 126, of The Cottage Gardener, signed "H. T.," to apply in London for one of the birds which he recommended; but upon my asking for it under its scientific name, *Loxia Cardinalis*, or *Cardinal Grosbeak*, and again speaking of it as the "Virginian Nightingale," the dealer assured me I was in error, that they were distinct birds, both of which he had (and showed me), the one had a bright scarlet breast, and the other was a much duller colour; one has a crest, the other not. Perhaps your correspondent would kindly relieve me from this difficulty which prevented my purchase. I may add, that I applied to a dealer in foreign birds, in the Pantheon, Oxford Street, and the price asked for each bird was £2. Is there a cheaper market?—A Subscriber.

Sprig on side of Spanish Cock's Comb (*R. S. B.*).—The sprig should be cut off at once. It should be done with a razor, or an instrument equally sharp. It should be cut downwards from the top of the comb. If carefully done, there is little or no scar left, and it is not, consequently, a disqualification. We shall be glad to hear from you about keeping fowls in a confined space.

Commencing Bee-keeping (*Brahma*).—Now is the time. Stewarton hives are simple and good. You may obtain them by writing to Mr. Eaglesham, Stewarton, N.B. There is no difficulty in raising *a fawn* if you have a good supply of milk; but it is not worth the trouble, unless to turn into some park to join a herd.

Coverings for Hives (*Apimania*).—You will have seen what has been said in our pages recently, relative to Roman cement. No hive ought to remain unprotected through the winter. The combs are sure to become mouldy and the bees diseased. We like your idea of covering a straw hive with another straw hive of larger dimensions, painted outside. You must have it fastened to the stand, or storms will upset it. Oblige us by detailing your arrangements, and what such covers cost. They might be made to cover wooden hives; for, though these are square or octagon, the cover might be circular.

Working Bees Laying Eggs.—In reply to *Kensington* (page 176), Mr. Shirley Hibberd informs us that "the cells were not exhibited as 'a new discovery,' or in any other way than for whatever interest the fact, as a fact, might be worth."

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JUNE 26—JULY 2, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
26	Tu	Cornea sanguinea.	29.938—29.775	81—55	S.W.	.10	46 af 3	19 af 8	34 11	9	2 33	178
27	W	Alchemilla vulgaris.	30.094—30.044	80—56	S.W.	.12	47 3	19 8	54 11	8	2 46	179
28	Th	Queen Victoria Crowned, 1838.	29.933—29.816	71—50	S.W.	.62	47 3	19 8	morn.	9	2 58	180
29	F	St. Peter.	30.050—30.040	72—42	N.W.	—	48 3	19 8	17 0	10	3 10	181
30	S	Sagina procumbens.	30.092—30.066	74—40	N.E.	—	48 3	18 8	50 0	11	3 22	182
1	Sun	4 Sunday after Trinity.	30.089—30.050	70—53	N.E.	—	49 3	18 8	33 m 1	12	3 33	183
2	M	Utricularia vulgaris.	30.125—30.055	75—56	E.	.76	50 3	18 8	30 2	13	3 44	184

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 73.2° and 51° respectively. The greatest heat, 93°, occurred on the 27th, in 1826; and the lowest cold, 35°, on the 27th, in 1858. During the period 141 days were fine, and on 90 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Brussels Sprouts: advantage to be taken of the present very favourable weather for planting out the main crops. *Broccoli*, plant out a good breadth of Early White and Purple Cape. *Carrots*, a little more seed may be sown, to produce a later crop for drawing young. Loosen the earth between the main crops where it is battered hard by the late heavy rains. *Cauliflowers*, plant out some of the late sowing. *Cucumbers*, the plants in the ridges will be benefited by being mulched with short grass or litter of any kind. *Endive*, sow for the main crop. *French Beans*, sow. Thin, earth up, and stop advancing crops. *Peas*, sow some of the quick-bearing kinds for autumn use. Continue to stick the advancing crops. *Small Salad*, keep up a succession by repeated sowings in the open ground in a shady situation. *Spinach*, sow once a fortnight. *Scarlet Runners*, a sowing may yet be made to come in late in the autumn. Stick the advancing crops. *Savoys*, take advantage of the present weather to plant out the main crop. *Turnips*, make another sowing.

FLOWER GARDEN.

Advantage to be taken of the present showery weather to plant out German Asters, Ten-week Stocks, French Marigolds, and other annuals, to fill up all vacancies in the flower-borders. Continue to peg down all plants that require it. Regulate the shoots of climbers. Stake and tie up all tall-growing plants. Prick out biennials into nursery-beds. Continue to put in pipings of Pinks. Layer Carnations and Picotees. Increase *Alyssum saxatile* by layers or cuttings. Stick Sweet Peas and Convolvulus.

FRUIT GARDEN.

Lay in the young shoots of Peach and Nectarine trees, stopping any that are taking a prominent lead, and endeavour to secure an equal state of growth all over the tree. Wall trees in general will be benefited by strong syringings occasionally to remove earwigs, woodlice, spider's-webs, or any other such filth that is generally to be found amongst the shreds and at the back of the shoots, and if not dislodged will cause damage to the fruit. Lay the runners of Strawberries into small pots: it is one of the best methods for procuring good strong plants for forcing. Protect fruit from birds.

STOVE.

The removal of some of the larger specimens from the stove to the conservatory will afford more space for the young stock, which will require frequent attention in shifting, &c. If dull weather prevails, the use of the syringe will be less frequently necessary; the admission of air, however little in such weather, will be useful.

GREENHOUSE AND CONSERVATORY.

As the wood of greenhouse plants matured in the open air is less likely to suffer from damp or long confinement than that which has been produced under glass, the principal part may now be placed in a sheltered situation in the open ground. Give early attention to plants for autumn and winter flowering—such as Chrysanthemums, Asters, *Lilium lancifolium*, *Salvia splendens*, Globe Amaranths, Cinerarias, Cytisuses, Gesneras, Scarlet Geraniums, Begonias, Euphorbias, tree Carnations, Veronicas, Tropæolums, Epacris, Ericas, &c. To treat these properly they will require good, rich compost, plenty of pot-room, and sufficient space for the development of their foliage, a moist atmosphere, and temperature to suit the nature of the plant. Keep up the supply of moisture, and syringe growing stock slightly twice a-day during bright weather. Avoid a too free use of shading, and ventilate freely, to secure sturdy growth. Continue to pay attention to the New Holland plants, using the knife rather freely on all loose, straggling growth, and shifting them if they require it. When the herbaceous Calceolarias have done blooming, the flower-stems to be removed, and the plants to be placed in a shady situation under the protection of a frame. Cinerarias from seed to be put into single pots as soon as large enough. Many of the Mesembryanthemums may now be planted on rockwork, where they will do well, and make a beautiful show during the summer and autumn.

PITS AND FRAMES.

Melons: continue to maintain the linings, to produce a sufficient degree of heat to counteract the injurious effect on the swelling fruit that would be produced by the continuance of cold, ungenial weather.

W. Keane.

BEGONIAS.

When I spoke of Mr. Low giving ten guineas for three leaves of *Begonia Rex* to the Messrs. Rollisson, and told that he cut up these three leaves like mincemeat, and that every morsel of the mince made a plant, I think I mentioned that two hundred of the plants stood together then on a front shelf, and that I never saw a more telling bed, or some such observation. At all events, I booked them for bedding out. But the first actual information I received of such bedding being done was from Mr. Cutbush, of Highgate, when I went to see his Hyacinths. He told me that he had seen a large bed of them last year by Mr. Taylor, at Shrubland Park, and as I had planted that bed twelve or fourteen times, I could understand how two hundred *Begonia Rex* of the same size as those at the Clapton Nursery could be well accommodated in that very bed, which happened to be the first bed I made myself in that celebrated bedding place. But there were many other Begonias and fine-leaved plants in that bed when Mr. Cutbush called, and he told me the whole of them looked "stunning," notwithstanding the dryness of the place and the season.

As the first accounts of scientific planting, and the present natural arrangements of colours in flower gardens, have been dated from Shrubland Park, I rejoice to be able also to announce that Sir William Middleton has left by his will £2000 a-year to be spent on those gardens,

which strikes me as the best form of charity I ever yet heard of by a wealthy great man for the benefit of his poor dependents; for, with the exception of the head gardener and two or three foremen, the whole of the men employed in the garden are from the neighbouring villages.

A clergyman from below Bristol planted out some *Begonia Rex* on the 8th of last May, and they are looking well; and he tells that he heard that the great Rose growers of Berkhampstead, the Messrs. Lane, had beds of Begonias out last year, and *Rex* among the rest; and I have said a real bedding Begonia was out in the Experimental, and did well till that severe frost in October. These are all the actuals on my books; but the Samaritans have poured in lots of Begonias to the Experimental, and *Rex, Nebulosa, Grandis, Regina, Rollissonii,* and *Griffithii,* are now planted out there fresh from the packing-hampers. And what would you think were sent for new edging—goodness knows for what, but they, too, are planted, edged, and hedged as best we could? Lots and lots of little tiny *Adiantum cuneatum,* in peculiar-bottomed No. 60-pots; and of all the pretty little things you ever saw spangled with dew drops, none could be really prettier than these *cuneatums* after the rain. But none of the fairy *Caladium argyrites* came in, and very probably they are not yet burdened with too many of them down in Samaria; but we shall have them by-and-by, for of all other things, they are the prettiest things for edgings to formal and genuine beds of Elegantissimuses, to coin a new word for that for which we have not another.

But stop a bit. I have a Paris print now before me of two new Caladiums, and one of them will match Mr. Low's Caladium from before the flood—his *Colocasia metallica,* which is a Caladium, all but the name and the botany of the thing; the match will be in strong opposite contrast. *Metallica* is of a violet-purple bronze all over the huge and the tiny leaves of that plant. *Belleymei* or *Caladium Belleymei* has the leaf long and more sagittate, or more arrow-head-like, and more narrow than those of the old *Caladium bicolor.* All the blade-part of the leaf is white as snow, with a norrow strip along the margin or edge, and all the veins as green as Leeks, with a little flush of *pudibundus* in the centre of the leaf. This is the most conspicuous of all the variegated plants yet discovered, and will hold the same position, or match, among variegated plants as *Colocasia metallica* will occupy among fine-foliaged kinds. It is coming out directly from M. Chantin, of Paris; and I owe for the first account of it to an American gentleman from New York—one who has just made a clean sweep of all the best new plants in London and Paris, taking off all my "Good Gracious" things from the Wellington Road Nursery, and all the old things before the flood, and the new after, from the Clapton Nursery; together with all the *curiositates* from Chantin's *établissement* in Paris.

Caladium Baraguinii is also a new one, more after the fashion of *bicolor* in the same collection. When all these new things get too big for one's room, the best way is to do with them as the late Mr. McNab did with his over-grown specimens from all the hothouses—plant them out of doors in June, and let the frost of next winter finish them. Once that system is adopted by any one, either from choice or curiosity, he or she can never give it up again; for the thing gives such an entire change to some parts of one's garden or pleasure-grounds, as to appear quite a slice from some favourite retreat in the tropics; and visitors take such interest in all things which appear very different from the usual run of things, that one is kept constantly on the look out for fit subjects for the "exotic garden." I was inoculated with this turn by seeing over the wall of the Experimental Garden, in Edinburgh, into the exotic groves in the Botanic Garden by Mr. McNab, and I could never get rid of it. I made some useful blunders in it long ago, when I thought that botany was the best part of plants, and decoration with them a mere namby-pamby fancy; when, in fact, if any one had spoken to me seriously about Pelargoniums, Geraniums, and "them" sort of things, I should have turned up my nose, and considered myself a much-insulted gentleman. But my blunders with exotic beds and borders were even then worth seeing. The Doctor used to come and see them; Sir William Hooker and Sir Joseph Paxton the same. I vouch for it that those three great men never suspected a blunder at all in all my beds. Try them now, however, and see how this world has changed for the last thirty years. Each of them can, at the present day, discuss mauve colour with a court milliner, and ribbon lines with the élite of her patrons, and even decry a grove of botany, or exotic fancies out of doors, if they were an inch out of place. The ruling passion prompted me to speak of bedding Begonias; but is it all right with them, and such as they? It is no such thing, they were never made for bedding on the principles of the present day. But there is a place for everything, even in the smallest garden; and the grand secret of successful decoration is, like the grand secret of dressing for court, to have everything in the right place and in the right character.

Upon that principle all the fancy-leaved Begonias would be in place and character in and about all manner of fancy rock work, rustic work, root work, knoll work, mound work, on the sides and banks of running rivulets, and on all places above the eye, as you pass the recesses in the wilderness of pleasure-grounds, or anywhere that would place them between the eye and the sky line. Then, if you want to make the best of their peculiar purple tints, have masses of some blue flowers near them. But when seen from under the eye—that is, their upper surfaces are seen only, no blue, or yellow, or scarlet must be near them, or it is worse than murder; and no more than half a dozen of any one sort of them should be planted together in such places and for such purposes as the above. But for neutral beds in regular terrace gardens a mass of one sort would probably tell better than a mass of mixed sorts—at least I think so; but it is difficult to determine such things without trial experiments on purpose.

If flowering Begonias will ever be fit for real bedding, they must be had from crossing with the naturally perpetual-flowering kinds, of which *Dreggii* or *parviflora* should be the mother parent for some generations, that being the best-habited for bedding of all the family. The one which was used last year in the Experimental Garden is nearly as dwarf as *Dreggii* and as free a bloomer, and blooms from May to the frost in the autumn with the usual red of the family. It is a cross, ten years of age, and grown out of doors in summer all the time by its author, the king of all the British cross-breeders, from whom I select the following, which will meet the wants and wishes of some of our readers:—

"I have the white *Anemone apennina,* which some folks do not believe in, and many pale shades from its seeding in a mass with the blue. I found it in the ruins of Hadrian's villa at Albano. I cannot imagine *Brilliant* a sport from *Tom Thumb,* the colour is so different." But I took the real *Tom Thumb* from a sport of *Brilliant* with this hand; and Mr. Donald, of the Hampton Court Garden, has done a similar turn to my knowledge. Other cases are also authenticated. But *Dandy* from *Grossulariæfolia,* and *Lady Plymouth* from *suaveolens,* are greater departures from the type; to say nothing of the *Golden Chain* from *Inquinans,* and a *crimson flower,* of which scores are in my possession, from the original scarlet *Horseshoe,* as vouched for by Miller. His majesty goes on to say, "I have just got a cross up from *Canna iridiflora,* by my beautiful *Warczewiczii* cross. The seedlings show the colour of leaf of the male parent. This will be the finest of all the garden Cannas. My gems of the

Unique crosses are *Rosina* and *Imperial* (and the rest are in the Experimental). I have just flowered a red-purple *Gauntlet*, and have a rose-coloured one. *Virginium* crossed by *Pearl* has produced a beat on *Larkfield Rival*, the forcingest plant I ever came across. The colour of *Fulgidum* does not seem to show in the first crosses, but to fructify in the subsequent in-and-in work. How curious this is!

"The single white Hepaticas *riot* in *pure peat*, but I never could get them to thrive in anything else. I doubt not we might get it double if anybody would sow a good breadth of seeds from the whites. I once had two forms of it—one with pink anthers, and the other all white. *Bouvardias* not a good field for crossing, form and habit so much alike. *Mathiola incana* and *glabra* cross freely notwithstanding Darwin's theory of species. Pray get *Ipomœa grandiflora* from Carter for the Experimental. It is a form of *Bona Nox*, flowering at six o'clock in the evening. It opens quickly enough to be easily visible, the expansion but about three seconds. I used to have a bevy every evening last summer to see it." And your humble servant, some years since, used to send up the expanded flowers to the drawing-rooms in a hat-box every night about ten o'clock. It is the "Midnight Lily" of some foreign travellers. A stove annual, or requiring that treatment at first. In June I used to plant out my plants in a late vinery, where they would bloom for about six weeks, but I never could seed it. D. Beaton.

SPERGULA PILIFERA WHERE GRASS WOULD NOT GROW.

I have just been reading Mr. Beaton's article in The Cottage Gardener for June 12th, on the *Spergula pilifera*. I quite agree with him, in thinking it a most useful discovery. It must, I am sure, in a short time begin to cover our lawns and banks.

I write to say, that as he is making particular inquiries about it for the benefit of others, I should be most happy to show him some now growing on a bank in our garden, under many disadvantages. Not having very great faith in the wonderful reports we heard of the Spergula, we bought, merely for trial, six pots, 2*s*. worth. It has grown so fast and answers so well, that I think I may say our bank will be covered with our 2*s*. worth before the end of this year.

It is a bank I ought to say no grass would keep on. Our gardener cut away a piece of sod, and put a few small pieces of Spergula in. It stood the sun bravely, and it was put in at a most unfavourable time—about Midsummer; and now, as I said before, it is in a most thriving condition.—Ann Wheeler, *Perry Vale, Sydenham.*

CULTURE OF THE ROSE IN POTS.

The growing of Roses under protection implies that they are grown in pots, at least generally so. As I have written lately on the culture of Roses in the open air, I, to make my work complete, shall compose a paper or two on the growing them in pots indoors. No doubt my remarks may be somewhat superfluous to many of our readers who understand the culture of Roses in pots quite as well, or, may be, better than I do; but I am sensible that there are great numbers that will be thankful for information on this important part of the culture of this charming flower. I have visited scores if not hundreds of gardens; and noticed that, though Camellias, Azaleas, Geraniums, &c., have been well grown in pots, yet this more worthy plant the Rose, with a few honourable exceptions, was far from being well grown and bloomed—the growers seeming to think that it could not be done, or perhaps content with growing it well in the open air; yet the same care bestowed upon them as upon other greenhouse plants will bring forth equally as happy a result. Another consideration is worthy of notice—and that is, that Roses in pots may be had in flower, with the help of a little heat, all the year round. Again: There are varieties of Roses that are tender, and suffer greatly by the severity of our winter climate and heavy autumnal rains; and these varieties are free bloomers, finely formed flowers, and the most fragrant, and consequently most worthy of the care necessary to their successful and certain culture in order to bloom them well.

Soil.—The Rose in the open border thrives best in a good, deep, friable loam, enriched with well-decomposed stable-dung. Bearing this in mind, the following compost will grow them well in pots:—Two parts of loam taken from an upland pasture, two or three inches thick, turf included. Chop and break this well up, but do not sift it. Add one part hotbed-dung; and, if convenient, add one part of burnt soil, though this is not absolutely necessary. For Tea-scented and China varieties add one part of leaf mould and a small portion of sandy peat. A few broken bones amongst the compost will do good also. Throw this compost together in a heap as soon as it is collected, and let it be turned over every two months till it be wanted. If a dusting of quicklime is mixed with the compost every time it is turned it will be of service in two ways—that of converting decayed vegetable matter into humus, and helping to destroy worms and grubs.

Potting.—The best season for potting Roses intended to be grown in pots for some years is early in the autumn—that is, for such Roses as have been growing in the open air. If they have to be procured from a nurserymen, send (or go and choose the plants, which is by far the best plan), and desire the nurseryman to send such plants as are likely to be suitable for pot culture, specifying that they must be healthy, grown moderately, and with well-ripened wood; further stipulate that they must be carefully taken up, and their roots wrapped in damp moss, and both roots and top securely packed up in a good mat, and sent off the same day they are packed. In the meantime have the pots ready, the soil moderately dried, and plenty of broken pots made ready for drainage. Then when the package arrives let it be carefully opened, and if the roots have come in dry, place them in tepid water for a few hours in a shed where the sun cannot reach the tops. If the roots are moist this need not be done, only keep them moist by covering them up till they are potted. Choose the pots according to the strength of the plants. Examine the roots and prune in any that are straggling, or that are wounded; also, cut away all suckers, and shorten in long, straggling shoots. If the shoots are thick on the plant, thin them out, leaving the rest open and free from each other. Then proceed to pot by first draining the pot and then placing some turfy pieces over the drainage; after that put the roots into the pot, distributing them as equally as possible on every side. By no means cram them in a heap, but let the bottom or lower roots, be opened out; then put in a layer of the compost, and upon that place the next higher roots, then a second layer of soil, and so proceed till the pot is filled. Go on by this plan till all the stock are potted, then give a good watering, and place the newly-potted Roses in a cold pit. Shade from mid-day sun, and syringe gently with tepid water every evening for a week. By that time the bark will be filled up and plump, the root action will be commencing, and then less shade and more air may be given.

Many autumnal-flowering Roses may be procured from the nursery in small pots growing on their own roots. These are most excellent for pot culture, and travel more safely, as far as the roots are concerned. When these reach the cultivator, he should turn the balls out of the pots, pick out all, or nearly all, the old soil, and immediately pot them in his own compost in pots two or three inches wider, pruning the shoots as directed above, and placing the pots into the pit the same as the others. The object of this is to induce new roots to be formed before winter sets in.

Protection.—It may seem somewhat strange to direct the sheltering of a hardy shrub from the frosts of winter; but it must be remembered that I am writing about hardy shrubs to be grown in pots. To be successful, every care must be taken of them all the year. What they require, after they have been potted, watered, and shaded for a month, is for the more hardy kinds to be taken out of the pit, pruned, and plunged in an open part of the garden, and the surface covered with a mulching of short stable litter; the tender kinds should be kept in a pit plunged in coal ashes, and the glass drawn off every mild day, or in gentle warm rain, but kept with air on at the back in heavy rains, and in a severe frosty time, covered up at night with mats, either the common Russian, or mats made of straw. The rains of autumn injure the fine roots of tender Roses as much as severe frost, hence the keeping of them in a pit is very necessary. If a pit cannot be had, then plunge the pots in some protecting material, and shelter them under an awning formed with hoops and mats, or place them plunged behind a low wall, and form a shelter by

a moveable roof of Fern branches tied to framework, or any other material that will throw off the heavy rain. Two objects are gained by this,—the Roses in pots are protected, and the space they would occupy in the greenhouse may be filled with other kinds of plants in bloom. As soon as the weather becomes more mild, the pots should be lifted out of their winter shelter, clean washed, worms looked for and destroyed, and the surface soil removed, and fresh soil applied. Then proceed to pruning, which must be my next subject. T. Appleby.

(*To be continued.*)

HEATING A SMALL GREENHOUSE.

Will you give me your opinion about heating a small greenhouse? Span-roof, 16 feet by 10 feet, glass end but not sides. Its principal use to protect bedding plants through winter. Could I have all my hot-water pipes in an adjoining space, so as to use the stone shelf above that space for striking on—that is, covered with three inches of sand, and yet not have my greenhouse too hot for other things? I could cover the enclosed space with glass like a common Cucumber-frame, if thought advisable. The next question I should be obliged by your answering is, If I have 40 feet of four-inch pipes in that enclosed space, could I keep out the frost in winter by opening two doors—say 1 foot 6 inches by 2 feet, into that space which may be called the pipe-chamber?

The above arrangement is like having a huge box 10 feet long, 3 feet high, and 3 feet wide, at one end of my sixteen-feet-by-ten-feet greenhouse, the top of the box being used to strike cuttings, &c., the two doors at the side to let heat into the house. The pipes will be fixed to an open boiler in the saddle-room adjoining.—Abraham Atkinson.

[By your proposed plan, we have no doubt but that you will be able to exclude frost, by having openings in the chamber as you propose; but with your present arrangements your house will be much cooler at the glass end than where the pipes are situated. You may satisfy yourself of this, by sitting close to the parlour fire in a winter's night: it will be much cosier there than at the farther extremity of the room. The difference will be greater in a glass-roofed and glass-ended greenhouse than in a dwelling-house. The heat from your openings will have a tendency to rise to the roof at the warm end, and to fall again when cooled, without making a complete circulation of the house. If the roof of the house, instead of being level, rose a little to the glass end, the circulation would be more complete. To make the heated air circulate better still, have the one or two openings near the top of your chamber, for the egress of heated air, and an opening at the bottom communicating with an earthenware-pipe drain—say seven or eight inches in diameter, placed beneath the level of the floor, or under your stage, communicating with an open grating at the glass end. By this means when the air in the chamber or enclosed box is heated, it will be rarified, expand, and rise, and the cold air in the drain will be drawn up to supply its place. The cold air at the glass end will thus continuously be drawn through the grating and drain, and the heated air will follow along the roof and end to supply its place; and thus a circulation will be maintained over the house, and the temperature will be much more uniform. When artificial heat is not wanted, keep the openings shut; and if desirous to be very correct, have also a slide of plate iron, or a slate, &c., to stop all current in the drain. If you cover your box or that end with glass, you may get a good heat underneath the glass without much influencing the house, except through the wall; but if more air is given at that part, greenhouse plants will thrive quite close on the stage or shelf near to the heated end. Of course, the tenderest things should be placed at that end. So much as to improving your plan. Without something of the kind to insure rapid circulation, we think you may have some trouble, unless the roof of the house rose a little to the farther end, or the sides of your stone table were enclosed, by which means the two passages would act as return drains of cold air, and an opening should be placed opposite each of them into the chamber, to be opened or shut at pleasure, just like the opening at the top for letting out the heated air.

These, for anything we know to the contrary, may be the best modes under the circumstances. We will just instance another mode by which the same results might be obtained. Supposing, as in your case, that the heating boiler is an open one, that must determine the level of the pipes. We will suppose that there is room and a suitable level for pipes underneath the side-shelves. Then keeping economy as well as fitness in view, we would not have a stack of forty feet of four-inch pipes in the chamber, but would substitute for them a tank of bricks and cement, or iron, or slate—say two feet and a half wide, and six inches deep, covered with thin slate. Were there no doors in the way, we would from this tank take a four-inch pipe all round the house, one end being inserted at the top of the tank, and the other at the bottom. A simple wooden plug would shut off the circulation at pleasure. If there were a doorway at the glass end, which we suspect, then two two-inch or three-inch pipes on each side would serve the same purpose. The tank could thus be heated independently of the pipes, and the temperature in the house could not help being somewhat uniform. With the earthenware drain, or the side-paths made to answer as such, your own plan will answer; but we have doubts if you have only openings to let out hot air, and none by which cold air can be drawn in easily and systematically.]

SKIMMIA JAPONICA BERRIES AND BOUVARDIA CULTURE.

I bought a plant of *Skimmia Japonica* two years ago. The first year I cut it back, and had three shoots; these shoots all flowered this spring. I was surprised to see after the flowers dropped off an appearance of berries. These are now as large as a moderate-sized Pea. Will these berries produce seeds? If not, should they be cut off to allow the plant to make young wood?

Having read of Bouvardias being showy plants, I have just bought three varieties; but they are so small in the wood, and weak, that I am disappointed, and much discouraged. I have found in the number for April 3, page 14, an answer on the culture of Bouvardias. The remarks are good; but the plants I have I fear will never be equal in growth to Fuchsias. My Fuchsias are very strong in growth. I shall be obliged if any more advice can be given than in the April number.—M. F.

[The Cottage Gardener first took up *Skimmia Japonica* for the coral brilliancy of its berries during the winter; and if you pick them off for some fancy of your own, pray do so, but say nothing about it, lest others should take to similarly spoiling the plant's beauty. It is a dwarf plant naturally, and very slow of growth, and a handful of bonnie berries will not hurt in the least. Sow the berries in February, or as soon as they are ripe, and you will have Skimmias enough to make a cover for game under the large trees some day.

Bouvardias are worth all the care you can give them. Turn them out *now* into a good bed or border of light, rich stuff, and no matter how small they are, they will soon tell another tale. But it is a daft thing for anybody to attempt to grow them up to the mark in pots, as compared to their health and vigour out of doors; but take them up in October, and keep them then like young Fuchsias.]

A MINIATURE CUTTING-HOUSE—PROLIFEROUS MUSHROOM.

In gardens where there is no cutting-house or pit, a difficulty is often experienced in the first months of the year in preparing the heating materials for the frame in which the spring cuttings are to be struck, more especially when no shed is at hand to keep the same dry.

The following simple construction will save this trouble. In describing the following I doubt not that to many of my fellow gardeners it will be nothing new, certainly not in principle. Those in possession of a pit, a light from which can possibly be spared, could alter it as below with trifling expense and little trouble.

First, divide the light from the other part of the pit by putting a brick-wide division from the foundation up to the rafter. Should the pit be one devoid of pigeon-holes for heating, by knocking a few bricks out carefully at equal distances, this requirement is easily obtained. By placing lasting pieces of timber one at the back and one in front, one end worked into the brick division, the other inserted into the outer wall, upon these placing other pieces from back to front, at distances to be under the joints of the to-be-flooring of the frame, a foundation for the same having been secured, slates two or three thick might be used; but the best and most secure you can put are square

flooring tiles, or pavings. The joints to be well cemented, particularly finishing the same and sides to permit no transpiration; as by allowing the least admission of vapour (steam), the object in view is destroyed.

According to the size or sort of pots or pans, so must be determined the distance of the floor from the glass by measuring with either of the above in front, allowing for thicknesses of timber, &c., used; the whole to be slightly falling to a front corner. When watered, the water draining there to be let out by a pipe.

The object is to attain, in the most simple manner, a close steamless box or frame. No matter how strong the material for heating may be, it requires no preparation. A caution as to quantity only to be determined by the heat within, which, when kept closed, should never exceed 60°; 55° being preferable, and to be kept regular.

Independent of its use for spring bedding-out cuttings, it will be found equally useful for stove or greenhouse cuttings. This being the season when pits can best be spared, this also is the best season for making the above; the joints will then become well set and properly hardened to resist the pressure and penetration of the steam contained in the hollow pit enclosed below.

A singular freak in the fungi division of the vegetable kingdom has grown here in the Mushroom-house this season—it being one entire Mushroom growing out of and upon the back of another; the stem of the upper one growing up exactly from the centre of the upper surface of the cap of the lower one. The lower or bottom one was 3¼ inches in diameter; the upper one 2½ inches, with footstalks upon each firm and entire. The very curious occurrence described and illustrated in The Cottage Gardener before—viz., a Mushroom with the gills growing upwards upon the upper surface, I have also seen here this season, but not so large as the one illustrated.—W. Earley, *Gardener, Digswell House, Welwyn.*

PLANTS FOR A WINDOW GREENHOUSE.

I have just had a small greenhouse, quite a toy, built as a lean-to against the house, and opening from a staircase window facing east. I am very anxious to have two of the very best climbers for my purpose to grow against the greenhouse-wall (*i.e.*, the wall of the dwelling-house). I do not care for beauty of flower so much as for perfume, and of this I wish these two climbers to furnish me all the year round; one must do the work in summer, and the other in winter. There are two iron rods in it; supports I suppose. From these I would hang baskets with trailers. Can you tell me of four good ones? The house is 14 feet by 8 feet; height 13 feet to 7 feet.—Franciscea.

[We know of nothing sweeter in winter and spring than *Calycanthus præcox*, or what is generally called *Chimonanthus fragrans*, and with the protection of such a house, the flowers will come early in winter. It must, however, have plenty of air in summer. If the temperature at the end of the house is for long periods as low as 40°, Heliotropes will suffer, if not kept rather dry. We would prefer instead, *Mandevilla suaveolens*. For a hardy neighbour to the Calycanthus, though not so hardy, and though not a climber, we would prefer for scent the Sweet-scented Verbena (*Aloysia citriodora*). When once established and spurred back in winter, it will begin to break early in spring. The younger shoots will be delightful; and in summer, if allowed, they will be terminated with spikes of bloom—not at all interesting, however. The leaves are the charm. For hangers we would recommend—*Hibbertia grossulariæfolia*, *Saxifraga sarmentosa*, *Tradescantia zebrina*, and *Cactus flagelliformis*. If you wished summer-flowering plants, then you might have Maurandyas, Lophospermums, Lobelias, &c. The gas stove will do, if the gas fumes escape outside, by pipe, &c., if large enough.]

ORIGIN OF THE POLYANTHUS, COWSLIP, AND PRIMROSE.

Will you inform me how the Polyanthus was originally produced? and whether the common Cowslip, transplanted from the fields into a rich soil, will ever turn to the rich colour of a Polyanthus, and if so how it ought to be managed?

How may the common hedge Primrose be made to change its colour and become variegated?

How may the Primulas we have in pots be propagated and increased—whether by seed or by dividing the roots?—An Ignoramus.

[We have no knowledge of how the Polyanthus originated; but it is quite certain that it, and the Cowslip and Primrose, are different forms of the same flower. The Hon. and Rev. Dean Herbert says, in the "Trans. Hort. Soc.," vol. iv., p. 19, that he raised from the seed of one umbel of a highly-manured red Cowslip a Primrose, a Cowslip, and Oxlips of the usual and other colours; a black Polyanthus, a hose-in-hose Cowslip, and a natural Primrose, bearing its flowers on a Polyanthus stalk; and from the seed of the hose-in-hose Cowslip he raised a hose-in-hose Primrose. He was a most correct observer. But you can do just the same with or without crossing; but you cannot change colour but by raising seedlings. To increase individual kinds the only means is by dividing the roots early in March, or oftener, as Mr. Beaton propagated his yellow one, if you are expert enough.]

ANEMONE PULSATILLA.

If I were in my early home, as in days gone by, I would send "Rustic Robin" hundreds of plants of the *Anemone pulsatilla* (Pasque Flower), which abounds about nine miles from Cambridge, on the "Little Sand Hills" between the village of Hildersham and town of Linton. They formed in the early spring a most lovely purple carpet on those little hills. It was a favourite amusement in our childhood to walk to the spot where they used to grow, armed with trowels and baskets, to bring home plants for our garden. But alas! I must confess they never remained so lovely as in their native state. Cultivation spoilt them, as I am so old-fashioned as to think it does many other things, and they always grew too large.—Old Times.

THE SCIENCE OF GARDENING.

(*Continued from page* 169.)

Cuttings for multiplying any individual may in general be taken either from the stem, branch, or root, and are, in fact, grafts, which, by being placed in the earth—a medium favourable to the production of roots, expend their juices in the formation of radicles instead of aiding the stock to effect that development of vessels necessary for their union to it had they been grafted. A due degree of moisture and warmth in the soil is all that is absolutely required from it by cuttings, for these will often produce roots if placed in water only. That warmth and moisture promote the production of roots is proved by these being so frequently emitted by the stems of Vines in a stove.

The time for taking off cuttings from the parent plant for propagation is when the sap is in full activity, the vital energy in all its parts is then most potent for the development of the new organs their altered circumstances require. Well-matured buds are found to emit roots most successfully, and apparently for the same reason that they are least liable to failure when employed for budding,—viz., that being less easily excitable, they do not begin to develope until the cutting has the power to afford a due supply of sap. Therefore, in taking a cutting it is advisable to remove a portion of the wood having on it a bud, or joint, as it is popularly called, of the previous year's production.

Many plants can be multiplied by cuttings with the greatest facility, but others only with the greatest difficulty, and after every care has been taken to secure to the cutting every circumstance favourable to the development of roots.

Those plants which vegetate rapidly, and delight in either a moist or rich soil, are those which are propagated most readily by this mode, and such plants are the Willow, Gooseberry, and Pelargonium—a budded section of these can hardly be thrust into the ground without its rooting.

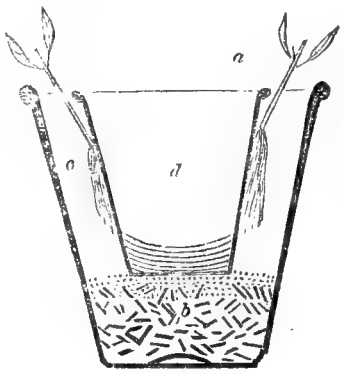
Cuttings of those plants which grow tardily, or, in other words, form new parts slowly, are those which are most liable to fail. These are strikingly instanced in the Heaths, the Orange, and Ceratonia.

A rooted cutting is not a new plant, it is only an extension of the parent, gifted with precisely the same habits, and delighting most in exactly the same degrees of heat, light, and moisture, and in the same food.

A cutting produces roots either from a bud or eye, or from a callus, resembling a protuberant lip, which forms from the alburnum between the wood and the bark round the face of the cut which divided the slip from the parent stem.

If the atmospheric temperature is so high that moisture is emitted from the leaves faster than it is supplied, they droop or flag, and the growth of the plant is suspended. If a cutting be placed in water, it imbibes at first more rapidly than a rooted plant of the same size, though this power rapidly decreases; but if planted in the earth, it at no time imbibes so fast as the rooted plant, provided the soil is similarly moist; and this evidently because it has not such an extensive imbibing surface as is possessed by the rooted plant: consequently the soil in which a cutting is placed should be much more moist than is beneficial to a rooted plant of the same species; and evaporation from the leaves should be checked by covering the cutting with a bell-glass, or either a Wardian or Waltonian Case would be still better.

In cases where cuttings root with difficulty, and it is desirable to keep up the supply of moisture to them very regularly, a reservoir of water is formed by placing a small pot in the centre of a large one, the water being left to ooze slowly through the porous sides of the pot, as shown in the accompanying *fig.*, in which *a* is a No. 60-pot, with the bottom closed up with clay, put into one of larger size; *b*, the drainage in the larger pot; *c*, the sand or soil in which the cuttings are inserted; and *d*, the water in the inner pot, which is prevented from escaping through its bottom by the clay stopping. Mr. Forsyth, the inventor of this mode of striking cuttings, proposes it to be used with hardy plants, such as Pinks and Wallflowers, under hand-glasses or frames, in the open air, as well as for all manner of house plants. The advantages, he says, are the regularity of the supply of moisture, without any chance of saturation; the power of examining the state of the cuttings at any time without injuring them, by lifting out the inner pot; the superior drainage, so essential in propagating, by having such a thin layer of soil; the roots being placed so near the sides of both pots; and the facility with which the plants, when rooted, can be parted for potting off, by taking out the inner pot, and with a knife cutting out every plant with its ball, without the awkward but often necessary process of turning the pot upside down to get out the cuttings.



The temperature to which the leaves are exposed should be approaching the lowest the plant will endure. The warmer the soil within the range of temperature most suitable to the plant, the more active are the roots, and the more energetically are carried on all the processes of the vessels buried beneath the surface of the soil: 50° for the atmosphere, and between 65° and 75° for the bottom heat, are the most effectual temperatures for the generality of plants.

The cutting should be as short as possible consistently with the objects in view.

Three or four leaves, or even two, if the cutting be very short, are abundant. They elaborate the sap quite as fast as required, and are not liable to exhaust the cutting by super-exhalation of moisture.

Cuttings taken from the upper branches of a plant flower and bear fruit the earliest, but those taken from near the soil are said to root most freely.

Cuttings which reluctantly emit roots, may be aided by ringing. The ring should be cut round the branch a few weeks before the cutting has to be removed; the bark should be completely removed down to the wood; and the section dividing the cutting from the parent be made between the ring and the parent stem, so soon as a callus appears round the upper edge of the ring.

Cuttings may often be made readily from the root of a plant, cuttings from the stem of which produce roots with difficulty. The root is the underground part of the stem, and in such instances emits leaves with more facility than the stem above ground can be induced to emit roots.

The roots should be those of healthy plants, rather young than old, and, in general, from half an inch to one or two inches in thickness. They may be cut into lengths of from three to six or nine inches, and planted in free soil, with the tops just above the surface. Care must be taken that the upper end of the cutting, or that which was next the stem before it was separated from the plant, be kept uppermost, for if that is not done, the cutting will not grow. This is the case even with cuttings of the Horse-radish and Sea-kale; but if cuttings of the roots of these and similar plants are laid down horizontally, and but slightly covered with soil, they will protude buds from what was the upper end before removal, and send out roots from the lower end. All Roses may be propagated by cuttings, and all fruit trees which are seedlings, or have been raised by cuttings or layers. The Robinia, Acacia, Gleditschia, Coronilla, Gymnocladus, and many other leguminosæ; Ailantus, Catalpa, the Balsam, Ontario and Lombardy Poplars, the English Elm, the Mulberry, the Maclura, various other ligneous plants, and all plants whatever that throw up suckers, may be increased by cuttings of the roots; as may a great number of herbaceous perennials. The best time for taking the cuttings off is when the plants are in a dormant state, and all that is required is a clean cut at both ends.—(*Loudon.*)

The importance of keeping the proper end of every cutting uppermost is further shown by the experiments of Mr. Knight. He planted in the autumn of 1802 twelve cuttings of the Sallow (*Salix caprea*), inverting one-half of them. The whole readily emitted roots, and grew with luxuriance; but their modes of growth were extremely different. In the cuttings which stood in their natural position, vegetation proceeded with most vigour at the points most elevated; but, in the inverted cuttings, it grew more and more languid as it became distant from the ground, and nearly ceased towards the conclusion of the summer, at the height of four feet. The new wood also, which was generated by these inverted cuttings, accumulated above the bases of the annual shoots.

These facts appear to prove, that the vessels of plants are not equally calculated to carry their contents in opposite directions; and afford some grounds to suspect that the vessels of the bark, like those which constitute the venous system of animals (to which they are in many respects analogous), may be provided with valves, whose extreme minuteness has concealed them from observation.—(*Knight's Papers*, 107.)

Mr. Loudon has classed the cuttings of plants usually in cultivation as follows:—

"*Cuttings of Hardy Deciduous Trees and Shrubs*—such as the Gooseberry, Currant, Willow, Poplar, &c., are easily rooted in the open garden, and the same may be said of the Vine and the Fig. As it is desirable that the Gooseberry and Currant should not throw up suckers, and should have a clean stem, all the buds are cut clean out, except three, or at most four, at the upper end of the cutting. The cuttings are planted erect, about six inches deep, and made quite firm by the dibber at their lower extremity. Cuttings of Honeysuckles, Syringas, Ampelopsis, Artemisia, Atragene, Atriplex, Baccharis, Berchemia, Bignonia, Calycanthus, Ceanothus, Chenopodium, Clematis, China Roses, *fig.* 6,

Fig. 6.—A cutting of *Rosa semperflorens*, prepared and planted.

and the like, are rather more difficult to root, and succeed best in a shady border and a sandy soil.

"*Cuttings of Hardy Evergreens*—such as the common Laurel, Portugal Laurel, Laurustinus, Arbor Vitæ, evergreen Privet, and a few others, may be rooted in common soil in the open garden;

being put in in autumn, and remaining there a year. Cuttings of Bupleurum, Buxus, Juniperus, Rhamnus, Holly, Sweet Bay, Aucuba, &c., require a shady border and a sandy soil. They are put in in autumn, of ripened wood; but young wood of these and all the kinds mentioned in this and the preceding paragraph will root freely, if taken off in the beginning of summer, when the lower end of the cutting is beginning to ripen, and planted in sand, and covered with a hand-glass.

"*Cuttings of all Coniferæ and Taxaceæ* may be taken off when the lower end of the cutting is beginning to ripen, and planted in sand, with a layer of leaf mould beneath, in pots well drained, in the month of August or September, and kept in a cold frame, from which the frost is completely excluded, till the growing season in spring, when they may be put into a gentle heat. It is not in general necessary to cover these cuttings with bell-glasses. Taxodium is an exception, as it roots best in winter.

"*Cuttings of Hardy and Half-hardy Herbaceous Plants*—such as Pinks, Carnations, Sweet Williams, Wallflowers, Stocks, Dahlias, Petunias, Verbenas, Rockets, and, in general, all herbaceous plants that have stems bearing leaves, root readily in sand under a hand-glass, placed in a shady border, or in a gentle heat, if greater expedition is required. All the cuttings must be cut through close under a joint, or in the case of Pinks, Carnations, or Sweet Williams, the operation of piping may be performed.

"*Piping* can only be performed with plants having tubular stems, and it is only with a few of these that gardeners are accustomed to practise it. The operation is performed when the plant has flowered, or soon afterwards, when it has nearly completed its growth for the season. The shoot chosen is held firm by the left hand, to prevent the root of the plant from being injured, while with the right the upper portion of the shoot is pulled asunder, one joint above the part held by the left hand. A portion of the shoot is thus separated at the socket formed by the axils of the leaves, and the appearance is as in *fig.* 7. Some propagators shorten the leaves before planting, but others leave them as in the figure. The soil in which the pipings are to be planted being rendered very fine, mixed with sand and then well watered, the pipings are stuck in without the use of a dibber or pricker, and the operation is completed by a second watering, which settles and renders firm the soil at the lower end of the piping.

Fig. 7.—A piping of a Pink, prepared and planted.

"*Cuttings of Soft-wooded Greenhouse Plants*—such as Pelargoniums, *fig.* 8, Fuchsias, *fig.* 9, Brugmansias, Maurandyas, and

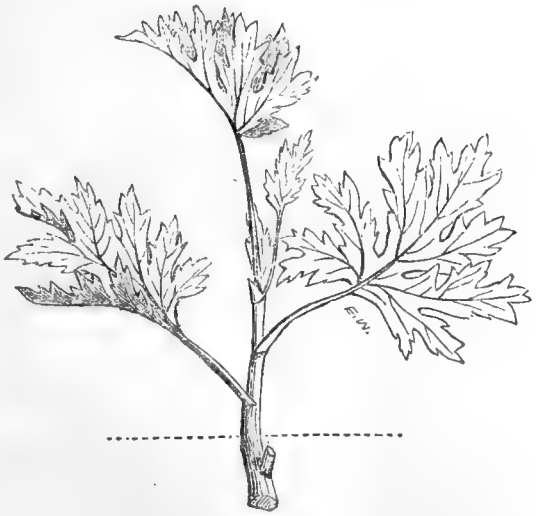


Fig. 8.—A cutting of the Rose-scented Pelargonium, prepared and planted.

all other soft-wooded plants, being cut off where the wood is beginning to ripen, and planted in sand or sandy loam, or sand and peat, root readily, with or without a bell or hand-glass, in a shady situation, and in a greenhouse temperature. Cuttings of these and all other soft-wooded plants may be divided into one or more lengths; it being only essential that there should be two

Fig. 9.—A cutting of a Fuchsia, prepared and planted.

joints, one for burying in the soil to emit roots, and the other kept above the soil to produce a shoot. The cuttings of soft-wooded plants which root best, are laterals of average strength.

"*Cuttings of Hard-wooded Greenhouse Plants*—such as Camellias, Myrtle, evergreen Acacias, and most Cape and Australian shrubs with comparatively broad leaves, are more difficult to root than soft-wooded greenhouse plants. The cuttings are made from the points of the shoots, after the spring growth has been completed, and before the young wood is thoroughly ripened.

Fig. 10.—A cutting of the young wood of *Acacia alata*, prepared and planted.

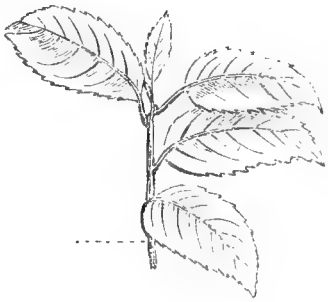


Fig. 11.—A cutting of the young wood of a Camellia, prepared and planted.

If put in in February or March, such cuttings will be fit to transplant in July or August. Sometimes they are put in in autumn, or the beginning of winter, in which case they will not root till the following spring, and must be kept cool till that season. In either case, all the leaves must be kept on, except one, or at most two, on the lower end of the cutting, which need not be planted more than an inch in depth, and should, in general, be covered with a bell-glass.

"*Cuttings of Heath-like Plants*—such as Erica, Epacris, Diosma, Brunia, &c., are among the most difficult to root. They should be taken from the points of the side-shoots early in spring, when the plants have nearly ceased growing; not be more than from an inch to two inches in length, and cut clean across at a joint, and the leaves clipped or cut off for about half an inch upwards from the lower end of the cutting. Thus prepared, they should be planted in pure white sand, with a little peat soil as a substratum, and the whole well drained. The pot should then be covered with a bell-glass, and placed in a frame, or in the front of a greenhouse, and shaded during sunshine.

Fig. 12.—A cutting of an Epacris, prepared and planted.

"*Cuttings of Succulent Plants*—such as Cactuses, Cereuses, Euphorbias, Mesembryanthemums, Crassulas, Stapelias, and the

like, require to lie a few days before being planted, in order to dry the wounds; after which they may be inserted in pots containing a mixture of peat, sand, and brick rubbish, well drained; after which the pots may be set on the front shelf of a warm greenhouse, and occasionally watered, but shading will be unnecessary."—J.

(*To be continued.*)

AZALEA INDICA, MINUTIÆ OF CULTURE.

(*Continued from page* 183.)

These with their myriads of hybrids, are universal favourites for pot culture. Many of them are hardy enough to stand out of doors in warm, sheltered places. The old *Indica alba*, and *Phœnicia*, and some hybrids, I have seen standing side by side with the hardier American and Ghent varieties. Some of the finer kinds would not stand such treatment; and even in the hardiest, though the plant lives and is healthy, the flowers lose much of that magnificence which they present when under glass. One of their most useful properties is, that after the flower-buds are formed, and the plants are rested, they may be forced into bloom at any time, and especially after Christmas. When left to themselves in a cool house, they generally bloom most freely from the middle of April to the middle of May. When wanted much earlier or later the plants must be excited or retarded. In forcing, care should be taken to present the extra heat very gradually, beginning at about 42°, and rising gradually to 50° in a fortnight, and in another fortnight to from 50° to 58°. If the change is too rapid, the bud is apt to be shoved off its socket and drop, or be so injured that the plant will be more apt to grow than to bloom profusely. For the latter purpose, after the plants have been kept cool in winter, never above 40° with fire heat, they should be removed at the end of March into a shady place, but where the plants would be defended from frost. A house of frigi domo, tiffany, or thin calico, something similar to the structure used by the Messrs. Veitch, of Exeter, for growing hardy Ferns, would just be the thing for them, as the plants could have plenty of air, and yet be defended alike from the frost, the sun's rays, and heavy rains. It is only by some such management that fine plants can be had in bloom at the end of June and the beginning of July. By combining the accelerating and the retarding processes, the time of blooming can be greatly lengthened, when there are plenty of plants, and room and conveniences for so treating them.

The main points of treatment are much the same as for Camellias alluded to last week. The finer kinds are generally grafted pretty low on stocks of the old White or Purple. Most commercial growers keep plants grafted at different heights, as low or tall standards. The White and the Purple not only strike more freely than the finer kinds, but they are more robust and free growing, and, consequently, a plant grafted on such stock grows more freely than when on its own roots. The hardiness of the stock is also a great advantage. Sometimes fine-looking plants will go off suddenly, becoming dead or diseased at the stem near where it joins the soil. I believe that this is generally produced by pouring water frequently on the stem when watering. Many plants will suffer from gangrene if generally so used. The preventive is to soil the surface of the ball with water without forming a hole something like a peewit's nest close to the stem, which causes the stem to be moist long there when all the rest of the plant is dry enough. Now, the stem of *Indica alba* will even stand this when the stems of many of the finer florists' kinds would be sure to suffer. Hence the advantage of grafting.

The mode of *pruning* will at once be understood, by recollecting that it is at the points of the young shoots made and ripened this summer that flower-buds will be formed for blooming next season. The time for pruning in the case of established plants is after flowering has finished. The plants should then be thoroughly cleared of all dead flowers, and be well washed, first with soap water and then with clean water. When the young shoots are starting green fly sometimes makes its appearance, and must be done for by tobacco-smoking. The greatest enemy of this plant is the thrips, and it is apt to get in strength during flowering time; and therefore, after giving the plants a smoking, the above washing will be of great service, laying the plant down, and turning it over and over, so that no part of it shall be missed. The washing is a good thing if no insects have made their appearance. Two ounces of soap in four gallons of water will be strong enough; and before the plants are thoroughly dry, follow with clean water not colder than 90°. The plants will thank you for the attention. If the plants should be very bad, dipping them in weak glue water is as good a cure as I have ever met with, and does them little or no harm. Now in the case of fine symmetrical plants this cleaning will be all the pruning that will be necessary. If the plants have got very open and straggling in their growth, and the wood is not above three years old or so, the plants may be cut in pretty freely, and then be placed in a moist close heat of from 60° to 75°. Here, if not too old, they will break freely; if too old they will not break well at all, and thus you have the chance of renewing or losing a plant. When broken afresh in this case, some shoots will most likely look much stronger than their neighbours. These must have their points nipped out when two or three inches long, so that, breaking again, their new shoots may be equal in strength to the others unstopped. In such a case, the chief thing to be aimed at is to have the plant covered with young shoots of equal growth, and just far enough apart to allow room for their leaves. In nice, compact, small, young plants, this nipping out the point early of a young shoot that seems to take pre-eminence over its neighbours is all the pruning and dressing that will be required, after being cleared of all the old flowers, seed-vessels, &c.

As soon as cleared and washed, and allowed to rest for a few days, the plants should be incited to grow by giving them a higher temperature and a moister atmosphere by degrees—say from 50° to 65°. A forcing-house will do for this. The floor of a vinery or of the greenhouse must be used. The plants should be collected at one end, that end kept with less air; plenty of water given at the roots, free syringings overhead several times a-day, and a slight shade given from the brightest sunshine. Under such treatment in a greenhouse the young shoots will soon show themselves, and must be looked after as respects pinching, &c. When two inches or so in length, repotting, if necessary, should be done. I say if necessary; because large plants in twelve or eighteen-inch pots will stand and flower well in the same pots for a number of years, more especially if annual top-dressings of fresh soil are given, and weak manure waterings from old cowdung are communicated when the plants are thus making their wood, and again when the flower-buds are swelling and opening for bloom. The same care as to drainage, &c., will have to be taken as for the Camellia.

The soil must be chiefly heath soil, sandy peat, with a very little very sweet leaf mould, and a portion of silver sand and bits of charcoal to keep the soil open. This is especially necessary for young plants. When the plants get large enough to go into eight and twelve-inch pots, about one-fourth of very sweet fibry brown loam will be relished, and will help to cause the plants to grow more stubby and compact, and also enable the ball to hold water longer. In other respects treat as advised for the Camellia. Keep extra shaded for a few days after shifting; and syringe overhead, and also the floor and stage, at least three times a-day, when the weather is at all warm and bright. No check will thus be experienced. For reasons specified last week I would, in the case of amateurs especially, recommend small shiftings in repottings, in order that the pots may be filled with roots before winter. When the shoots have made from two to three inches in growth give more air and light by degrees, or remove the plants where they will have these conditions. Thus the same place may be used for accelerating the growth of several successions of plants.

Shortly after the plants are thus exposed to full light, elongation of growth will be arrested. The ripening instead of the mere growing process will commence. A little attention will show you, that a round bud is forming at the end of the shoots instead of mere extension. From that time the plants should have all the light and air possible. Ere long they will be better out of doors than in the house. A sheltered place shaded from the mid-day sun is generally chosen; but that is not because the plants would not stand the sun well enough, but because the fine hair-roots close to the sides of the pots are apt to be injured by the sun beating on them. When the plants, therefore, are set in the sun out of doors, see, that by means of a mat, a green sod, or by plunging, and yet securing drainage, the sun does not strike fiercely on the pot. If these precautions cannot well be carried out, it is best to place the plants behind a wall or hedge, where the plants will be protected from the noonday sun. In exposed places, a shading of tiffany or anything of that kind would be useful.

Under such circumstances in a favourable season the plants may remain until the middle of October, but saved from heavy

rains. It is safest to house before there is any frost, as the small roots are apt to be injured when the pots are exposed. After being housed they should be kept as cool and airy as possible to be safe, and no more water given than will be sufficient to keep the ball moist, not wet. Under such circumstances many of the older leaves will fall; but that is of no consequence, the comparative freedom from growth is all in favour of the flower-buds swelling freely. When you either want for the advancing strength of the sun to effect that object, or by gentle degrees, give them more and more artificial excitement. R. Fish.

LILY OF THE VALLEY CULTURE.

Will you describe the favourite aspect and treatment of the Lily of the Valley? It is capricious or untrue to its name, as I have tried shade as well as sunshine unsuccessfully as regards flowers; but have succeeded in obtaining abundance of leaves.—N. B.

[Where the ground suits the Lily of the Valley, it grows equally well on every aspect of the compass, in shade, and full in the sun. It is one of the most capricious plants in cultivation, and where the natural soil does not suit it, no one that we know of has ever yet made it do well. With us it will bloom abundantly and force, and has forced in the same pots for the last five winters, in common black sandy soil; but for fifteen years previously we were baffled by it on other soils.]

CULTURE OF THE GENUS ANŒCTOCHILUS.

In answer to "An Irish Subscriber," we may state, that in early numbers of The Cottage Gardener, Mr. Appleby, amongst other Orchids, gives full directions how to grow the genus Anœctochilus. As, however, our correspondent may not have these numbers, we will now give the information wished for. There is no work of moderate cost that gives a good account of them excepting the one named above.

The Anœctochils are not easy to grow, the best cultivators find them very uncertain and capricious in their habits. For a year or two they flourish admirably, then fall off and die away most unaccountably. No doubt there is a cause for this failure, though that cause has not been satisfactorily found out as yet. We take it for granted that there is a hothouse to grow them in.

Now is a good season to repot the plants. Procure a quantity of sphagnum or bog white moss, chop it small, also some turfy peat as full of fibry roots as you can get it. Chop this also into moderate-sized pieces, and sift out all the fine dust. Also, procure some charcoal, and break it into pieces the size of Walnuts, and some a little less. Mix these altogether, and add a small quantity of silver sand. Have ready also the requisite number of clean pots,—of sizes proportionate to the size of your plants. If fresh from the pottery, put them in cold water for a few hours, and set them to dry in a warm room or shed. Also, make ready a sufficient quantity of broken pots, a few large pieces to lay over the holes at the bottom of the pots, a larger quantity of lesser pieces to lay upon the first size, and a still larger quantity of small pieces to cover them with. These are for drainage. Effectual drainage is very necessary, for stagnant water is death to these tender plants.

Having these materials all ready and placed in some place where they may become moderately warm, then proceed to repot your plants. Turn them out of the pots very carefully, so as not to injure or bruise a single leaf; pick away very carefully all the old soil from each plant. Fill a pot with the drainage half full; then place a portion of the compost upon the drainage, sufficient to raise the plant level with the rim of the pot. Be careful not to overpot them; keep the plant in the centre of the pot, and gradually fill in the compost round the plant till the pot is full, pressing it down as the process goes on, and finish the operation neatly, leaving the leaves just above the compost. Then give a gentle watering with milkwarm water, and place the plant in the stove for a night to allow the surface of the compost to become rather dry. Then cover every plant with a clean bell-glass, and shade from bright sun with white paper. Wipe the glasses every morning if the least moisture is observable. In summer, give a little air daily, by tilting the glasses with a small piece of wood or broken pots. Keep the compost moist during the growing season, but very moderately so in winter.

You may propagate them by dividing off a sucker with roots attached to it in early spring, treating it exactly in the same manner as described above, when repotting established plants.

These plants require a rather high temperature—in summer from 70° to 90°; and in winter from 60° to 70°. The lower temperature for night, and the higher heat for day. A moist atmosphere is necessary to keep them in health. Some cultivators grow them in boxes covered with large, long, squares of glass, but the bell-glasses are to be preferred. With the above treatment carefully followed, and repotting every spring, these lovely plants may be successfully cultivated.

The following are now cultivated in this country:—Anœctochilus argenteus, A. argenteus pictus, A. El Dorado, A. Lobbii, A. Lowii, A. Lowii virescens, A. rubro venia, A. Roxburghii, A. setaceus, A. setaceus cordatus, A. setaceus intermedius, A. striatus, A. Veitchii, A. xanthophyllus.

SHOOTS OF DEODAR DYING—PINE APPLES DECAYED IN THE CENTRE.

I have a fine *Cedrus deodara* about seventeen years old, and this year, without any apparent cause, several small branches have died suddenly. They are at the top of the tree, but not all together, as healthy and dead branches are mixed, and the rest of the tree is quite healthy. The soil is gravelly. I shall be very glad if any one can tell me what to do for the tree.

Can you also tell me the reason for Pine Apples getting black in the centre, and any way of preventing it? Is it a good plan to pick out (as some do) the *centre* of the crown of Pines, to prevent the crowns growing large?—M. H.

[The frost hurt the tender tops of that Deodara last autumn, but until the growth of this season began they did not show the injury. You can do nothing now to help it, but it will soon right itself. We cannot say what ails the centre of the Pines. Surely no one in these days of enlightened gardening injured them by operating on the crowns—a most unscientific idea. Gardeners grow Pines purposely with small crowns to show their skill, but if they attempted to stop the crowns artificially, it must end, as we think, in doing no good at all, and be liable to do injury.]

TO CORRESPONDENTS.

Work on Flower Culture (*Gloxinia*).—We know of none so cheap, or that contains so much in a small compass, as "The Garden Manual," published at our office, and which you may have sent post free for twenty penny postage stamps.

Marvel of Peru—Hydrangeas Yellow-leaved—Crossing Tulips (*J. V.*).—The botanical name of your Marvel of Peru is *Mirabilis jalapa*. It is a native of the West Indies. It grows two feet high, forms a dense bush, and has various-coloured flowers two or three inches long, and shaped like a trumpet. You have so far treated your plants correctly, and may now plant them out in a bed in rather rich, light soil in a sheltered part of your garden; or if you choose you may grow some in pots nine inches wide in rich soil, and keep them to bloom in the greenhouse during summer. They die down in the autumn; but they have long, fleshy roots, something like a Carrot. If you like you may cut off the decayed tops, and put the roots, packed in sand, in a warm shed through the winter, and then plant them out again in April. The second year they flower much stronger than the first. The cause of your Hydrangeas having yellow leaves, is your soil being too light, and your drainage imperfect. Take off as much soil as you can and replace it with strong loam mixed with very rotten cowdung. The leaves will then turn green enough, and soon make fine bushy plants, provided you give them plenty of potroom. By the time you see this it will be too late to impregnate your Tulips, unless your blooms are very late. There is but little mystery about this. In the centre there is the female part of the flower called the stigma. Around it are the males, which are called stamens. These open, and there appears a dust inside. This dust should be gathered, and thrown upon the stigma, thereby causing seed to be produced. Do this, and you will have plenty of seed. Gather it when ripe, save it till March, and sow it in boxes or shallow pans placed under glass—a pit or frame will do. Keep the young bulbs in the pans or boxes two years; then plant them out in beds in November; taking them up when the leaves decay, and replanting annually. In seven years they will flower.

Planting Trees for Shelter (*H.*).—It is very difficult to advise without being on the spot. One might ruin the effect of the view by half a dozen trees, even when on the spot, without an eye which could tell the future for fifty years to come: we would rather be excused from that responsibility. If you like to plant trees to shelter you from that quarter, the fastest-growing Poplars are the very best you can use. The Black Italian is the best of them, and is called *Populus monilifera*. The plants should be from six feet to ten feet long, and the end of October is the best time for planting them. But we would do nothing of that kind for ourselves in such a situation; we would rather chance all storms and winds. Perhaps we shall not have such another windy season in our lifetime.

Garden at Kensington Gore (*P. L.*).—It will not be a botanical but a horticultural garden. You may obtain full particulars by writing to the Secretary, Horticultural Society, 8, St. Martin's Place, London.

Geraniums (*W. G.*).—Mr. Beaton says your Geranium was fortunate to escape being ever named; so you can give it any new name you choose. Many thousands have been like it in that respect. He says you made his teeth water with those turban Ranunculuses and hoop-petticoat Narcissuses.

Dwarf Plants for a Rockery (*E. D. S.*).—The species of plants of dwarf habit suitable for rockwork are very numerous, and may be easily procured from any respectable nurseryman. They vary in price from 6*d.* to 1*s.* each; but if a good order is given they may be obtained from 4*s.* to 6*s.* per dozen kinds. The following will answer your purpose, selected out of great numbers, and all very hardy:—

Ajuga reptans	Phlox subulata
Alyssum compactum	P. verna
A. saxatile	Polygonum vacciniifolium
A. Podolicum	Primula marginata
Antennaria alpina	P. calycina
A. purpurea	Saxifraga atro-purpurea
Arabis alpina	S. Andrewsii
A. grandiflora	S. ceratophylla
A. lucida	S. dentata
A. lucida variegata	S. elegans
A. saxatilis	S. hirta
Arenaria longifolia	S. oppositifolia
A. verna	S. palmata
Aster alpina	S. rosularis
Aubrietia purpurea	S. umbrosa
Campanula muralis	Sedum albicans
C. pumila	S. dasiphyllum
C. pumila alba	S. formosum
Cerastium alpina	S. roseum
Cheiranthus Marshallii	S. rupestris
Cornus succisa	S. trifoliatum
Dianthus alpinus	Sempervivum arachnoideum
D. deltoides	S. globiferum
D. marginatus	S. grandiflorum
Epimedium pinnatum	S. hirtum
Gentiana acaulis	S. montanum
G. Bavarica	S. sulphureum
G. verna	Silene acaulis
Geranium Lancastriensis	S. acaulis alba
Gnaphalium dioicum	S. alpestris
G. marginatum	S. quadridentata
Gypsophila prostrata	S. Schafftii
Iberis sempervirens	Thymus Azoricus
I. Teucreana	T. montanus
Linum flavum	T. micans
Lotus corniculatus pleno	T. tomentosus
Mitella diphylla	Veronica lactea
Myosotis montana	V. orientalis
Œnothera prostrata	Viola hirta
Phlox frondosa	V. palustris
P. procumbens	V. Pennsylvanica
P. setacea	

Clear Barley-water (*Miss N. P.*).—The following is a good recipe for making it:—One tea-spoonful of pearl barley, half the peal of a lemon, six lumps of sugar, and the smallest pinch of isinglass to one quart of boiling water. Set it by in a covered earthen vessel till cool.

Cuttings—Sea-kale (*M. C.*).—We know of no gardeners who sell cuttings. The best directions for forcing Sea-kale are in "Kitchen Gardening for the Many," published at our office, price fourpence, and which you may have sent post free for five penny postage stamps.

F.H.S. and F.L.S. (*Labor ipse Voluptas*).—To entitle any one to append these letters to his or her name he or she must be elected a Fellow of the Horticultural and Linnæan Societies respectively, and must pay the requisite fees either in a gross sum or annually. The ability to pay is the chief indispensable qualification of a Fellow.

Growing Balsams—Phlox Drummondi—Dianthus Heddewigii, and Carnations (*Novice*).—The following is the method the best growers of Balsams adopt: Sow the seeds in March, and as soon as the plants have fully expanded their seed-leaves, pot them singly into two-inch pots in a light rich soil. Repot again in three weeks, and follow that operation on successively, never allowing them to fill the pots with roots. Keep them in a moist heat of 70°, giving air daily to keep them low and bushy. The last shift should not be less than into nine-inch pots; though, to make fine large plants, it is necessary that the last potting should be into eleven-inch pots. Every time they are shifted the soil should be made richer, till, at the last potting, it consist of one-half cakey, well-rotted, and sweet cow-dung, and sandy, rough, turfy loam. They will then be strong plants, with stems two inches diameter, and branches in proportion. Compare this treatment with your own, and you will see where you have failed. Repot your plants directly in the rich compost, give the same heat and plenty of water, and you will soon see your plants improve. Your *Phlox Drummondi*, you say, is shanky. That is owing, first, to being in too high temperature, and next to being cramped for pot-room. Place it in a cooler habitation, give plenty of air, and repot as soon as the roots reach the sides of the pots. This plant does best in the open air. *Dianthus Chinensis Heddewigii* is also quite hardy in the summer; but, if wished to be grown for decorating the greenhouse-stage, place the plants whilst young on a shelf in the greenhouse, and repot as soon and often as they require it. A single well-grown plant requires for its last shift a nine-inch pot. *Carnations.*—You have made a mistake in potting them so lightly that the soil has sunk so much below the rim of the pot. It is to be feared that if you lift them out in order to fill up the pots, that they will receive a severe check. However, try to do so with part of your stock, and surface the others with fresh, rich, light compost, giving a rather short supply of water for a week or two, to enable the roots to rise up into the new compost. As you have made this mistake this year, take care to pot more firmly the next.

Rhubarb Wine (*A Rector*).—In our fourth volume there are many communications relative to British-wine making, but none surpass in "practice with science" those of Mr. Levett, Surgeon, Wells, Somerset. The following is extracted from one of his communications:—"We will suppose the quantity to be made to be 10 gallons. This is a very convenient quantity for beginners, although it should be borne in mind that *the larger the quantity made*, the more easily and perfectly will fermentation be carried on. The articles necessary are:—First, a tub capacious enough to hold rather more than this quantity; a common washing-tub will answer the purpose. Secondly, a 9-gallon cask and a 2-gallon stone jar, both scrupulously clean, or a foreign and disagreeable flavour may be imparted to the wine. Thirdly, a convenient wooden-mallet to bruise the Rhubarb-stalks. Fourthly, some kind of screw-press, to press out the juice from the bruised stalks; a common linen-press might easily be adapted for use. I generally borrow a "tincture press" from my druggist for the purpose. Fifthly, a vial bottle fastened to a stick, so that a small portion of the wine may be conveniently dipped from the bung-hole, in order to ascertain, from time to time, the progress of the fermentation. Sixthly, although this may be dispensed with, although necessary when accuracy is desired—a saccharometer. Now for the recipe:—

Take of Rhubarb-stalks (unpealed)	60	pounds.
,, loaf sugar	30	,,
,, red argol (powdered)	4	ounces.
,, water, a sufficient quantity.		

The Rhubarb-stalks should be bruised one by one with the mallet against the side or bottom of the tub. Four or five gallons of cold water should then be poured upon them, in which they should be allowed to macerate for twelve or sixteen hours. The stalks should now be put into the press, and all their juice pressed out. This, with the liquor in which they were macerated, together with the sugar and the argol, should be mixed in the tub, and the quantity made up to 10½ gallons by the addition of cold water. (It would save trouble in measuring, if a mark were previously placed in the tub, to indicate when this quantity was contained in it.) This mixture is the artificial 'must.' The tub should now be covered with a blanket, and placed in a temperature of from 55° to 60°. Here it may remain, being occasionally stirred, for two or three days, according to the symptoms of fermentation it may show; it should then be poured off, straining it through flannel into the cask, which should be filled to the bung-hole, and placed across the tub, in order that the scum and yeast which will be thrown off may be caught and removed. The superabundant must, which will be 1½ gallon, must be poured into the jar, in order that as the fermentation in the cask proceeds, and the liquor diminishes, there may be a supply in readiness to fill up the cask, which must always be kept full or nearly so. In about a fortnight the bung may, most probably, be put loosely in, and in another week firmly fixed, and the cask placed in the cellar; but this, of course, depends upon the state of the wine. If the sweetness has disappeared, or nearly so,—or if, on the saccharometer being placed in it, the index marks a specific gravity of about 40,—the wine has fermented far enough for cellaring; if it has not reached this point, the wine should be well stirred, and the temperature kept up to promote further fermentation. In a month or six weeks after cellaring, it may be fined and drawn off into a clean cask, or the same properly cleaned, and, if necessary, sulphured to stop further fermentation, before the wine is returned. The cask may now be finally stopped close, and if an effervescent wine be desired, allowed to remain until March, when it should be bottled; the corks wired, and the bottles laid down. But if a still wine, like hock, be desired, another year in the wood, or even more, will be advantageous. The only difficulty about this process is to find out the precise period at which the fermentation has reached the desired point. The saccharometer will show this correctly. About 35, as marked on the scale of Thompson's saccharometer, would indicate proper attenuation for wine intended to be effervescent; if it is to be still and dry, it may be lower—25 to 30. But the taste may be educated so as to form an approximation to truth; as long as sweetness exists to any extent, the fermentation is incomplete; and after eating a small piece of crust, most persons may readily detect the presence of too much sugar in the wine; in this case the wine should be shaken or stirred, that the wine may 'feed,' as it is termed, on the lees; fining, on the contrary, will check fermentation; and when it has gone far enough, sulphurous-acid gas stops it, as in the process of 'sulphuring,' which may be readily done by burning a few sulphur matches within the bung-hole, the cask being inverted. Fining is generally performed by means of isinglass previously dissolved, or partly so, in a little of the wine. About a drachm of isinglass so dissolved and poured into the bung-hole, the *upper part* of the wine being stirred at the same time, will probably be found sufficient. Thompson's saccharometer cost £3 3*s.*; but a friend has informed me, that a simple glass one, quite sufficient for our purpose, may be procured for a few shillings. I will make inquiries respecting this, as, no doubt, to *insure* accuracy, a saccharomter is necessary, and the cost is an obstacle to its general use. As a rule it may be observed, that the finer the sugar, the more alcohol is produced from it. It may be noted, that as the Rhubarb juice will *iron mould* linen, care should be taken when the stalks are bruised. I will append a copy of some rough notes taken by myself of the different stages of manufacture of Rhubarb wine; they may serve as pegs whereupon to hang more extensive observations; and, in conclusion, I beg to say, that if any part of the foregoing directions be less clear than might be, I shall be happy to explain more in detail any little point; and I shall be gratified if what I have said should induce some of your readers to try the manufacture of this wine upon *correct* principles; and I am certain that they will find themselves amply repaid for the trouble and expense, in having, as a result, genuine, wholesome wine, instead of the compound of vinegar and sugar usually denominated 'home-made wine.'

"*Notes.*—1840. 10½ gallons, as receipt. Made, May 29th. Put in cask, June 2nd. Stopped, June 16th. Cellared, June 23rd; saccharometer, 45. Racked and fined, August 3rd. October 25th, racked and sulphured; saccharometer 37. Bottled, January 25th, 1841. This wine turned out very good,—not to be distinguished from champagne.

"1842. Rhubarb, 90 pounds. Sugar, 50 pounds. Argol, 8 ounces; quantity, 17 gallons. June 12th, made. June 19th, put in casks (a 9-gallon and a 6-gallon);—fermentation commenced the 17th. June 26th, stopped. July 4th, cellared; saccharometer 43. August 15th, racked.

"1843. March 17th, 9-gallon cask tested with saccharometer showed 34°; 6-gallon showed 40°. Bottled 9-gallon cask. Stirred 6-gallon. May 13th, fined 6-gallon and sulphured; saccharometer 33.

"1844. March—bottled.

"1850. A good still wine."

Gardening Works (*H. W.*).—The prices of the works advertised in our list require 1*d.* or 2*d.*, according to the size, to be added that they may be

sent post free. Rivers' *Rose Amateur's Guide* is a different work from that you name. You can have both that and the *Orchard-house* from our office. Sinclair's *Hortus Gramineus Woburnensis* can only be bought second-hand, and varies in price. There is only one work on Orchid culture. It is a very useful little work, and is known as Williams's *Orchid-grower's Manual*.

Clematis montana (*J. C.*).—The flower of this is white. We cannot tell what your plant is from the description. Send us a flower and a leaf.

Seedling Verbena (*Verbena Bedder*).—Cut flowers of Verbenas can only determine the shade or colour. This belongs to the new section of mauve colour, and, like *Lady Middleton*, to the lighter degree of mauve. It seems a very good style of flower.

Names of Ferns (*Miss Shiffner*).—No. 1. *Lastræa pallida* of South European botanists; a variety of *L. rigida*. 2. Nephrolepis, and apparently *N. tuberosa*; but this is not known as a European plant. Is there not some mistake about its coming from Naples, if by this is meant wild at Naples? 3. *Cystopteris fragilis*, var. *dentata*.

Name of Plant (*A Subscriber*).—The plant sent by your friend is a *Habrothamnus*, but which species we cannot tell from such a specimen; however, they are all evergreen greenhouse plants, natives of Mexico.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

June 29th. Driffield. *Sec.*, Mr. R. Davison. Entries close June 23rd.
June 29th and 30th, July 2nd and 3rd. Sheffield. *Sec.*, Mr. W. H. Dawson, Sheffield. Entries close June 14th.
July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.
July 19th. Prescot. *Sec.*, Mr. J. Beesley. Entries close July 7.
August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.
August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.
September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11
September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.
October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

THE EGG TRADE.

There is yet no diminution in the number of eggs imported into this country. In the last detail of the Peninsular and Oriental boats, the cargo winds up with boxes of eggs. The supply, then, is no longer confined to France, Belgium, Holland, or even Sardinia; but it now moves on, and we shall not be surprised to find, ere long, we get eggs from Algeria. The poultry question is long making its way in England, and people are slow to identify themselves with it, save as a hobby or a pastime. With the conviction it may be made a help to many a poor household, we have lately given some details of the way in which the fowls are raised and treated that form the supply of the London market. As we explained that it was not by vast establishments, but by numerous small ones, that the quantity was bred and fattened, and that the only share taken by the men who sent these vast consignments was to employ proper people to go round collecting; so we may say the same of eggs. They are either bought at the farmhouses, or at the market where they are sent for sale.

But a few years ago Hertfordshire was noted for its supply of eggs, and numerous higglers lived by this trade. It was their business to collect and bring eggs to London. They came in every Friday, and supplied the large confectioners and the cheesemongers. Many of them amassed considerable sums of money. They drove up, and thus became carriers as well as higglers. The trade was remunerative to all parties during the autumn, winter, and early spring months. When steam-boats first, railways and free trade afterwards, facilitated the introduction of foreign eggs, all those concerned in this trade took fright. Horses and carts were sold; the owners took beer-shops, or public houses, or starved on a few acres of land, and the trade was lost. In most families there are traditions and recollections of some one or other having given up something, when something else came out which was likely to interfere with it. Waggons were got rid of because a canal was projected; and how many valuable pursuits were abandoned when railways first became familiar and threatened to become general. Well, it was found after a year or two, there was still a good market for eggs, but the machinery was no longer in working order. The men who understood it had taken to other pursuits, and the trade died away. There are yet some who follow it, but not on the same scale their predecessors did. A great part of last-winter eggs were not to be had for money, and really new-laid ones made from 3*d.* to 4*d.* each. If it be admitted, for argument's sake, such prices are not always to be realised, we answer, without fear of contradiction, it is seldom they are not. New-laid eggs will always be in request in the winter. If there is no market nearer than London, send them there; thanks to railways and van parcels trains, they may be there within twenty-four hours of being laid. We repeat, as the result of many years of observation and experience, that wherever an unusually good thing is produced, there will be a demand for it; and the production of the article will cause the demand. We are speaking of poultry now as food only, and of eggs as contributing their quota in furnishing the supply of the kingdom. Some will smile, and others will shake their heads and say, This is not the style of English living. Granted, but is there not constant change in these things? Where is the corned-beef breakfast of Elizabeth's days? The huge pasty of Henry VIII.? Where are even the heavy dinners of our immediate forefathers? Where are the broken-mouthed sheep of our own days? Where is the five-year-old down mutton? It has passed away. The country cannot afford to wait so long for its food; and the requirements of hungry mouths make it more desirable the acres should fatten a larger number of young but good sheep, than the small number of choice, perfect, old mutton. Every sort of food that can be made useful or available is valuable, especially that which is akin to, if not positively, animal food, as eggs. We will return to this next week if we have space.

THORNE CATTLE, IMPLEMENT, and POULTRY ASSOCIATION.—June 20th.

Poultry was, of course, to the majority of visitors, the chief feature. The respective classes drew together exhibitors from all parts of the West Riding and Lincolnshire. Some idea of the extent of the Show in this department alone may be formed from the number of pens—there being no less than 198. Spanish, Cochin-China, Dorking, Duckwings, Black-breasted and other Red Game, Poland, Silver and Gold-pencilled Hamburghs, Black and White Bantams, cocks and hens of any cross or breed, were all entered, and gave rise to a spirited competition. In no class did the gentlemen officiating as Judges find more difficulty to make their selection than for the best *Dorking* cock and two hens. Only two prizes were awarded—the first to Mr. John Sledmore, of Epworth, and the second to Mr. Pelham Barnard, of Bigby Brigg. Three others were Commended. In class 53, for the "Best Cock of any Breed or Cross," three unsuccessful competitors were Commended out of twenty-seven. The *Guinea Fowls* were good specimens of their kind; and the *Turkeys* were equal to any that have been exhibited in former years. *Ducks* brought thirteen entries; and in the "Extra Stock" for poultry the Judges did not find anything worthy of more than a Commendation.

Rabbits were an admirable class, and twenty-eight pens were no inconsiderable display. Bucks (twelve), and does (nine), single specimens, required some care from which to make a judicious award.

Pigeons. No Commendations were made, but this does not deteriorate from the general quality; for, besides those that were fortunate to obtain the notice of the Judges, there were others little inferior in symmetry and breed.

The Show altogether was of a most satisfactory description, and, but for the unfavourable weather, we have no hesitation in saying that it would have been the best ever held at Thorne.

Mr. T. B. Stead and Mr. Jos. Conyers, of Leeds, officiated as Judges for poultry. They made their awards as follows:—

Spanish.—First, W. Cannan, Bradford. Second, J. Moss, Goole.

Cochin-China.—First, W. Harvey, Sheffield. Second, W. Cannan, Bradford. Commended, W. Harvey, Sheffield.

Dorkings.—First, J. Sledmore. Second, P. Barnard, Bigby Brigg. Commended, W. E. Easten, Hull; W. Brown, Crowle; W. Cannan, Bradford.

Game (White and Piles).—First, G. Low, Branton. Second, H. Adams, Beverley.

Game (Black-breasted and other Reds).—First, H. Adams, Beverley. Second, J. Crossland, Wakefield. Commended, J. Proctor, Doncaster.

Game (Duckwings, and other Greys and Blues).—First, F. Sales, Crowle. Second, R. Tate, Driffield.

Polands (any variety).—First and Second, J. Dixon, Bradford. Commended, W. Cannan, Bradford.

Hamburghs (Silver-spangled).—First, J. Dixon, Bradford. Second, W. Cannan, Bradford.

Hamburghs (Golden-spangled).—First, H. Adams, Beverley. Second, W. Cannan, Bradford.

Hamburghs (Silver-pencilled).—First, J. Dixon, Birmingham. Second, W. H. Boddy, Hull.

Hamburghs (Golden-pencilled).—First, W. Cannan, Bradford. Second, W. B. Key, Epworth.

Any Farmyard Cross.—First, P. Barnard, Bigby Brigg. Second, J. Dixon, Bradford.

Bantams (Silver or Golden-laced).—First, W. H. Boddy, Hull. Second, J. Dixon, Bradford.

Bantams (Black, White, or any other colour).—First, J. Dixon, Bradford. Second, Mrs. Silvester, Sheffield. Commended, S. Burn, Whitby; J. Crossland, Wakefield.

Any Breed or Cross.—First, R. Bentley, Woodhouse. Second, W. Cannan, Bradford. Commended, T. Sanderson, Sheffield; H. Hodge, Hull; R. Tate, Driffield.

Any Breed or Cross.—First, P. Barnard, Bigby Brigg. Second, H. Hodge, Hull. Commended, J. Dixon, Bradford.

Guinea Fowls.—First and Second, H. Hodge, Hull.

Turkeys.—First, J. Dixon, Bradford. Second, R. Tate, Driffield.

Geese.—First, Mrs. Appleyard, Thorne. Second, J. Dixon, Bradford. Commended, R. Husband, Levels.

Gibs.—First, J. Longhorn, Armyn. Second, R. Husband, Levels. Commended, J. Batty, Adds Farm, Thorne.

Ducks (any breed).—First, J. Dixon, Bradford. Second, R. Tate, Driffield.

Ducks (Aylesbury).—First, R. Tate, Driffield. Second, J. Dixon, Bradford. Commended, F. Thompson.

Extra Stock.—Commended, T. C. Addy, Epworth (Pintail Ducks); J. Acaster, jun. (Owls).

Rabbits.—*Buck and Doe.*—First, B. Hanson, Thorne. Second, Master W. R. Hinchsliff, Moorends. Commended, Master T. Moore, 40, High Street, Doncaster. *Buck.*—First, G. Jones, Birmingham. Second, W. Fortune, Doncaster. Commended, H. Wharam, Thorne. *Doe.*—First, G. Jones, Birmingham. Second, D. Burgess, Thorne. *For Weight.*—Prize, R. Tate, Driffield.

Pigeons.—*Carriers.*—First, W. H. Boddy, Hull. Second, H. Yardley, Birmingham. *Croppers.*—First, W. H. Boddy, Hull. Second, T. C. Addy, Epworth. *Tumblers.*—First, J. Oglesby, Hull. *Jacobins.*—First, T. Elrington, Woodmansey. Second, J. Oglesby, Hull. *Nuns.*—First, J. W. Edge, Aston New Town. Second, J. Oglesby, Hull. *Trumpeters.*—First, J. Key, Beverley. Second, T. C. Addy, Epworth. *Turbits.*—First, W. H. Boddy, Hull. Second, J. Oglesby, Hull. *Fantails.*—First, W. H. Boddy, Hull. Second, J. C. Brierley, Gelding, Notts. *Owls.*—First, W. Robinson, Doncaster. Second, R. Tate, Driffield.

It is due to Mr. Richardson, the Honorary Secretary, Mr. William Casson, and the Committee, to state that no efforts were spared by them to make the Show as satisfactory as possible to all who attended.—(*Doncaster Gazette.*)

RED-LEGGED PARTRIDGES.

There can, I think, be not much doubt about the Red-legged French Partridges staying in any of the "northern or western counties," if they are allowed to do so according to their own idea; but they would not stay and breed quietly and naturally about small grounds and pleasure gardens. Hatched under Bantam hens they might become habituated to a small space for a certain time, till the next breeding season, when, like their English namesakes, under those circumstances they are sure to go off. In fact, the French would be more likely to make a premature start than the English. The Red-legged Partridges are large and beautiful birds certainly, but they are not so good to eat as our own breed, and besides, like their biped countrymen, they are so unfortunately fond of fighting. As for instance: Formerly at Coombe Abbey, in Warwickshire, they were encouraged to breed naturally in the preserves, but owing to their worritting dispositions towards their neighbours, they were ordered off. The late Viscount Bolingbroke, at Lydiard, in Wiltshire, also allowed them for two or three seasons in his preserves, but was obliged to shoot off the whole crop of them, in consequence of their would-be dominating, driving qualities. In Norfolk, I believe, they occasionally rusticate: but there, from meeting with birds to fight with more in number, and of their own size, they may find it the best policy to behave more peaceably.

The late General St. John when he lived at the Wick, Brighton, and when Rabbits were to be shot there from the furze, had a tame Red-legged Partridge. It was not bred there, kept under a large coop on the lawn. One stormy night the wind blew the coop over, and the bird was a gone coon from that time.

In the year 1832, we hatched a sitting of common Partridges' eggs under a Bantam, in a small pleasure-ground in Shropshire. Most of them stayed about till the next breeding season, when off they went, though a covey or two were bred naturally near the spot for several years afterwards, and, possibly, may be to this day, thus proving a Partridge instinct for locality; and, towards your object, that is the utmost you may hope for from the other ilk.

We have got a tolerably fine, warm day to-day, and my bees are rejoicing at it—even so much as the poor fowls did when they became supplied at the eleventh hour with that modicum of straw at the Crystal Palace Poultry Show.—Upwards and Onwards.

THE COALBROOKDALE POULTRY SHOW.

From a knowledge of the individuals by whom all the arrangements for this Show were to be carried out, we naturally anticipated that the Coalbrookdale Exhibition would stand very highly among the poultry meetings of the season; and we are happy to say our expectations were fully realised.

Messrs. Boycott and J. B. Chune certainly left nothing undone that could be done to insure success; and among the many amateurs who attended, it was generally admitted that the Show was the most orderly and perfect in its appointments throughout they had ever witnessed. The weather, however, was the very contrary of auspicious, as scarcely a single hour passed by without continuous rain and occasional storms of thunder and lightning. Under so very unfavourable a contingency we were, however, much pleased to see so strong a muster, not only of the neighbouring aristocracy and gentry, but also of poultry amateurs who had travelled their hundred miles or more to witness the competition; as it had been pretty well understood that Coalbrookdale would stand exceedingly high in these now-by-far-most-popular classes the Game fowls. It will be seen the rumour was well proved to be a correct one.

Spanish were the first class on entering the tent that drew the notice of visitors. Mr. Teebay, of Preston, here very easily outvied all competitors. It is, indeed, impossible for his opponents to rob him of success so long as the excellent health and condition prevail in which he now exhibits; and it is a matter of surprise to many persons that the frequent repetitions of the fatigue ever consequent on exhibitions seem to exercise no baneful influence whatever on this gentleman's birds. This is surely a sufficient proof of how much depends on careful management when at home. The Coalbrookdale Meeting adds still another piece of plate to the many trophies of this excellent pen. In speaking so highly of the first-prize pen, we must not by any means detract from the well-deserved repute of the second and third-prize birds, Messrs. Dixon and Fowler exhibiting Spanish of unusual excellence. The class as a whole was deserving of high approval also. In *Grey Dorkings* there was not only a good entry, but by far the best collection throughout we have seen for some years past. By referring to the prize list it will be seen Mr. William Bromley, of Birmingham, secured the plate with a trio of Silver Greys of extraordinary size and beauty; they were much admired, and we think it very probable they will pass into other hands. Mr. H. Berwick, of Helmsley, York, and Mr. Samuel Burn, of Whitby, ran closely for the second and third premiums. We are of opinion the second-prize birds might be greatly improved by a little extra care and attention. We next come to the *Game* classes; and here certainly Coalbrookdale holds a second position to none of our poultry exhibitions. In the class for Blacks, Whites, and Piles, Mr. W. Dawson, of Selly Oak, still maintained his long-accustomed position by securing the plate prize. It is evident, however, that this pen is being so frequently shown as to affect their condition, the cock particularly. Messrs. Munn and Jones, therefore, pressed the first-prize birds far more closely than heretofore. The next class, for Black-breasted and other Reds, was good throughout; as there was not only a good entry, but also not an indifferent pen. Most of the birds, too, were in marvellous condition, and proved themselves quite as ready to do battle with the Judges as with their feathered opponents. The first prize was given to a magnificent pen of Black Reds, the second and third being Brown Reds. And it is here worthy of especial mention, that the birds of the latter colour, whether shown with hens or as single cocks, were decidedly the best we can call to recollection. They were not only exceedingly neat for their size, which was unusual, but good in every point for the purposes of the cockpit. The class for Duckwings was a very good one. It is of only rare occurrence that so keen a competition is carried throughout for three prizes. Messrs. Worrall, Peters, and Dawson being the successful ones. The *Hamburghs*, if we except the Golden-spangled, which were first-rate, have certainly been frequently shown in better trim; nor were the Sebright *Bantams* so good as those exhibited a few years back. It is somewhat singular this deterioration in one of certainly the most beautiful of our fancy fowls is becoming more and more manifest annually. The Game Bantams fully made up, however, for the shortcomings of the other varieties: they were most of

them excellent. The old mistake of not matching each pen as to the colour of the legs caused several otherwise-perfect pens to be disqualified. All other good qualities combined will not make good this deficiency, this rule being imperative. The *Cochins* exhibited were few in numbers, and generally out of condition.

In the sweepstakes for *Single Game Cocks*, of any colour, the rivalry was extreme. In fact, there were none but first-class specimens entered; so much so, as to require every bird to be carefully handled throughout the classes. The Black-breasted Red belonging to Mr. H. Adams, that so recently won the sweepstakes at Beverley, here added a similar laurel to his previous victories. Whilst in the second sweepstakes, a Brown-red (stag), of the highest character, belonging to Mr. Chune, the Hon. Secretary of the Show, secured for his owner the first premium, and the first for which he ever contested, and which, if we mistake not, will be followed by a long succession; as he is, undoubtedly, one of the most promising specimens in the Exhibition.

In *Ducks*, the Aylesburys were the only class of superior character. Here Mrs. Seamons and Mr. Fowler, both of Aylesbury, tried hard for the mastery. The lady, however, held her own with a pen of remarkably good birds. The class throughout was excellent.

The *Pigeons* were very good, and proved most attractive classes to the public.

The tent in which the Exhibition took place was one of the most commodious we have seen, and was profusely adorned with banners, evergreens, and flowers, very tastefully arranged by the hands of some of the ladies of Coalbrookdale. And as the Floral, Fruit, and Vegetable Exhibition took place beneath the same canvass, and was considered "unusually good," we will mention a few of its principal features for the information of those readers whose predilections point rather to horticulture than poultry.

A bouquet, fully half as large again as a stable-bucket, of the choicest flowers, exhibited by W. Rose, Esq., of Rock House, Coalport, caused hosts of lady visitors to, both audibly and involuntarily, break the the tenth commandment. An Orchid (*Cattleya Mossiæ*), shown by the same exhibitor, was but scarcely less admired. Lord Berwick forwarded two cut nosegays, but little inferior to the one just alluded to; and some extraordinarily good Potatoes.

Among the fruits exhibited, we noticed particularly a plate of six remarkably fine and well-ripened Peaches, and two dishes of equally good *Mayduke* Cherries, shown by Mr. Edward Hewitt, of Eden Cottage, Sparkbrook, Birmingham. They certainly looked most tempting in their condition, and secured two first prizes for that gentleman. A dish of Apples, by T. Boycott, Esq., were exhibited in as perfect condition as though just taken from the tree. Mrs. Darby, of Stanley Hall, sent a collection of Cockscombs and Calceolarias, that added most materially to the interest of this department of the Coalbrookdale Exhibition.

We cannot conclude without noticing particularly one item in the arrangements, that we should be glad to find universally adopted at poultry exhibitions. Every package was carefully stowed away as soon as emptied, in an additional tent, to remain thus secured from the weather until the close of the Meeting. Thus every pen of poultry had secured to them a perfectly dry basket for their return—no trifling consideration to those that had long distances to travel. We can also state, that under the immediate supervision of the Honorary Secretaries, every pen was safely returned without delay at the time of closing.

Spanish.—First, R. Teebay, Preston, Lancashire, Second, J. Dixon, Bradford, Yorkshire. Third, J. K. Fowler, Aylesbury, Bucks. Highly Commended, T. Robinson, the Gill, Ulverston. Commended, J. K. Fowler.

Dorkings.—First, W. Bromley, Smithfield, Birmingham. Second, H. W. B. Berwick, Helmsley, York. Third, S. Burn, 1, East Terrace, Whitby, York. Highly Commended, J. D. Hewson, Coton Hill, Stafford; W. H. Bartlam, Henley-in-Arden, Warwickshire; J. Anstice, Madeley Wood, Salop.

Game (White, Piles, Blacks, and Brassy-winged).—First, W. Dawson, Selly Oak, near Birmingham. Second, F. Munn, Temple Langerne, Worcester. Third, T. W. Jones, Wellington, Salop. Commended, Col. W. Blackburn, Leamington.

Game (Black-breasted and other Reds).—First, J. Fletcher, Stoneclough, near Manchester. Second, B. Vaughan, Ketley, Salop. Third, J. M. Baker, Hall End, Tamworth, Stafford. Highly Commended, the Right Hon. Lord Berwick, Cronkhill, Salop; J. B. Chune, Coalbrookdale; S. T. Smith, Lincoln View, Ironbridge. Commended, T. Robinson, the Gill, Ulverston.

Game (Duckwings and other Greys and Blues).—First, H. Worrall, Spring Grove, West Derby, Liverpool. Second, G. C. Peters, Birmingham. Third, W. Dawson, Selly Oak, Birmingham. Highly Commended, the Right Hon. Lord Berwick, Cronkhill, Salop; J. B. Chune, Coalbrookdale

Hamburghs (Gold or Silver-pencilled).—First, J. Munn, Heath Hill, Stacksteads, near Manchester. Second, J. Dixon, Bradford, Yorkshire. Third, E. Payne, the Wharf, Cardiff, South Wales. Commended, H. Corbett, Aston Hall, Shiffnal.

Hamburghs (Gold or Silver-spangled).—First, W. R. Lane, Bristol Road, Birmingham. Second, J. Dixon, Bradford, Yorkshire. Third, J. B. Chune, Coalbrookdale.

Game Bantams.—First, T. H. D. Bayly, Ickwell House, Biggleswade, Bedford. Second, J. Crossland, jun., Wakefield, Yo kshire. Third, J. Dixon, Bradford, Yorkshire. Fourth, H. Worrall, Spring Grove, West Derby, Liverpool. Commended, Capt. Percival, Whitby, York.

Bantams (any other variety).—First, J. Dixon, Bradford, Yorkshire. Second, T. H. D. Bayly, Ickwell House, Biggleswade, Bedford. Third, Rev. J. Bowden, Thurgoland Parsonage, Sheffield. Fourth, G. C. Peters, Birmingham.

Ducks (White Aylesbury).—First, Mrs. Seamons, Hartwell, Aylesbury, Bucks. Second and Third, J. K. Fowler, Aylesbury. Highly Commended, Mrs. Seamons; E. Payne, Wharf Cardiff, South Wales.

Ducks (any other variety).—First, J. K. Fowler, Aylesbury. Second, Mrs. Rose, Rock House, Coalport. Third, J. Dixon, Bradford, Yorkshire. Commended, T. H. D. Bayly, Ickwell House, Biggleswade.

Cochin-China (Grouse-coloured).—Prize, T. Stretch, Marsh Lane, Bootle, Liverpool.

Cochin-China (Black or White).—Prize, G. C. Peters, Birmingham.

Cochin-China (any other variety).—First, H. Tomlinson, Balsall Heath, Birmingham. Second, G. C. Peters, Birmingham. Third, T. Stretch, Marsh Lane, Bootle, Liverpool.

Game Cock Sweepstakes.—First, H. Adams, Beverley, Yorkshire. Second, W. Millard, Madeley, Salop. Third, J. B. Chune, Coalbrookdale. Fourth, H. Worrall, Spring Grove, West Derby, Liverpool. Highly Commended, the Right Hon. Lord Berwick, Cronkhill, Salop; G. W. Moss, the Beach, Aigburth, Liverpool; S. T. Smith, Lincoln View, Ironbridge. Commended, G. Cargey, Sandon Farm, Stone, Staffordshire; J. S. Butler, Poulton-le-Fylde, near Preston, Lancashire.

Game Cock Sweepstakes.—First, J. B. Chune, Coalbrookdale. Second, the Right Hon. Lord Berwick, Cronkhill, Salop. Third, B. Vaughan, Ketley, Salop. Highly Commended, the Right Hon. Lord Berwick. Commended, G. W. Moss, the Beach, Aigburth, Liverpool; B. Vaughan; J. R. Rogers, Honiton, Devonshire.

Game Bantam Cock Sweepstakes.—First, G. W. Moss, the Beach, Aigburth, Liverpool. Second, R. Hawksley, jun., Southwell, Nottingham. Third, S. Burn, Whitby, York. Highly Commended, W. R. Lane, Bristol Road, Birmingham. Commended, the Lady Steele, Mickleton Manor House, Gloucestershire; T. H. D. Bayly, Ickwell House, Biggleswade, Bedfordshire.

Pigeons.—First, H. Child, jun., Sherborne Road, Birmingham (Powters, Carriers, Almonds, Runts, Fantails, Frillbacks, Jacobines, Turbits, Magpies, Owls, Barbs, and Beards). Second, G. Goore, 3, Aigburth Vale, Liverpool (Owls, Turbits, Barbs, and Dragoons). Third, H. Morris, Perry Vale, Forest Hill, Kent (Owls, Turbits, Jacobines, and Fantails). Fourth, J. H. Cragie, Woodlands, Chigwell, Essex (Runts, Barbs, and Carriers). Highly Commended, H. Yardley, Market Hall, Birmingham (Carriers and Croppers).

Cottager's Poultry.—Prize, G. Wycherley, Admaston, Wellington. Prize, J. Hughes, Buildwas, Salop. Prize, T. Howells, Benthall, Salop. Prize, J. Thomas, Coalmoor, Salop.

Judges.—Mr. E. Hewitt, Sparkbrook, Birmingham, and Mr. G. S. Sainsbury, Rowde, Devizes.

Referee.—E. W. Hazelwood, Esq., Bridgenorth.

LIGURIAN QUEENS—A DISAPPOINTMENT.

My endeavours so to multiply Ligurian queen bees as to disseminate the species throughout the kingdom have resulted in an entire failure, at any rate for the present.

In making this announcement, I am aware that I shall cause considerable disappointment to many; and it is possible that some may be inclined to blame me for making what the result has proved to be—a premature attempt. To all such I would reply, that no one is probably so much disappointed as myself, and that the miscarriage is owing to circumstances which could not possibly have been foreseen.

First amongst the causes of failure must be reckoned the fact that two out of my four Ligurian stocks turned out hybrids, and, instead of being an assistance, were a great embarrassment in my queen-rearing experiments. Next comes the ungenial weather, which has not only caused some of my bees prematurely to exterminate their drones, but has actually produced a cessation of breeding in my best stocks, as well as destroying a vast number of young bees in all stages of development. Lastly, I may be permitted to state that ill-health has kept me a close prisoner during the past few weeks, and will necessarily prevent my devoting much attention to my apiary for some time to come.

It may, however, be satisfactory to my readers to learn, that I have proved by experience that Ligurian queen bees may readily be multiplied by artificial means. Instead of only two Italian queens, I have now five at the head of really good stocks, besides two not yet fertilised, which I shall exchange for the queens of my remaining hives as soon as I am satisfied that they are capable of fulfilling the functions of royalty.*

* I have witnessed the return of one of these queens from three excursions on as many different days.

Next season, therefore, I hope to commence with at least seven Ligurian stocks. If then blessed with renewed health, I trust I shall be enabled to realise those expectations whose delayed fulfilment is now sincerely regretted by—A Devonshire Bee-keeper.

P.S.—In reply to "Rosemary," I may state that most probably the Ligurian species will speedily be merged in the common bee, if sufficient precautions are not taken for preserving the purity of the breed.

THE LIGURIAN AND OTHER BEES.

Your esteemed correspondent, "A Devonshire Bee-keeper," in your last publication, raises the question, "Is *Apis Ligustica* really entitled to rank as a distinct species from *Apis mellifica*, or should it not rather be considered merely a variety of the same species?" I wish I possessed sufficient scientific entomological knowledge to reply satisfactorily; but, in the absence of more certain information, I will give an abbreviated extract from the thirty-fourth volume of the "Naturalist's Library," edited by Sir Wm. Jardine, where each distinct *species* is recognised. "In Europe," says the writer, "we have two distinct species of domestic honey-bee. Besides the one commonly cultivated—viz., the *Apis mellifica*, the *Apis Ligustica* of Spinola (*Apis Ligurienne* of Latreille), is cultivated with success in Italy, and is probably the same species that is found in the Grecian Archipelago. In its physical characters it nearly resembles our own hive bee: the difference consists in the two first rings of the abdomen, and the base of the third, being of a pale reddish colour, instead of a deep brown. The continent of Africa seems well stocked with bees. The insect itself, supposed to be the *Apis Fasciata* of Latreille, bears a considerable resemblance to that cultivated in Greece. On the western coast, where it is intersected by the Senegal, we find what we are assured is another species of bees—viz., *Apis Adansonii*. It has, however, a very near resemblance to *Apis Ligustica;* its difference being in the two first rings of the abdomen, and the anterior half of the third, which are of a pale chestnut colour."

The question of hybridising, which called forth the letter of "A Devonshire Bee-keeper," is a distinct part of the subject, and no analogy can be drawn from the habits of wild bees in a natural state, the process of engrafting the Italian (Greek?) bee upon an English stock being altogether an artificial one, by the forced substitution of one fertile queen for another. But the hybridising of bees is not the object in view; on the contrary, every precaution should be taken to prevent a mixed race in families by interposing the widest possible separation of locality. Any benefit to be derived from the introduction of the foreigners is a point yet to be ascertained, depending altogether on purity of breeds—whether considered as a variety only, or a distinct species. The latter question may, perhaps, attract the attention of some of your more scientific readers.

And this brings to my recollection a communication in your pages a short time since from Mr. J. Lowe, describing what he considered to be a new variety of the common bee in his possession. It is to be hoped that means will be resorted to, especially in the swarming time, to keep these strangers distinct from his other bees, so as to prevent their being merged into the general mass of the apiary.

The mention of Mr. Lowe's name reminds me that a debt of obligation is due to him for his recent letter in your columns (page 175), which some of your correspondents will do well to keep in recollection in speculating on the relative merits of this or that hive, as connected with the honey-harvest. His views are entirely supported by Dr. Bevan, Mr. Taylor, and Mr. Golding. The latter thus expresses himself in the "Shilling Bee-book:"—"Let my readers," says he, "repel the quackery which would make them believe that it was *the kind* of hive which commanded the honied store. No; that will be ruled by the productiveness of the season and locality."

With the pen in my hand, I will just refer to some recent remarks as regards *coverings* for hives exposed. An outer large straw hive, made to drop over another, is not uncommon, and such may be seen at Messrs. Neighbour & Sons, London. The price cannot much exceed a common hive, and it may be made by the same mechanic; nor is there any danger of blowing off. But the wet, if long continued, will find its way through paint notwithstanding. Roman cement is decidedly bad, though another kind of cement is spoken of in Taylor's "Bee-keeper's Manual," where is also described and illustrated a somewhat similar outer cover, but made as a mere straw cylinder open at each end. The difficulty as to wet is got over by means of a loose zinc cover somewhat raised in the centre, fitting over the top of the cylinder as a lid, and the rim a little overlapping all round. The whole may be made high enough to include a super of any kind if desired. In the absence of zinc a wooden cover might answer, chamfered from the centre to shoot off wet.—An Old Apiarian.

TOADS ARE BEE-EATERS.

Having been from an early age addicted to raising seedlings and plants from cuttings, a deadly feeling soon possessed me against slugs; and one morning, whilst visiting under a north wall my striking-bed of double Wallflowers, a deep respect was implanted in me for all toads, by finding one which I then believed in the last embrace of death, choked by a slug which had proved too large for his gullet. This extreme devotion in aid of my endeavours naturally tended to beget a kindly feeling to Mr. Toad; and often have I afforded his race protection against the wanton cruelty of thoughtless and ignorant boys. Last year, however, I found that these gentry, morbidly idle and lethargic as they appear, had a great predilection for the company of the hive bee: and having concluded in my own mind that whatever amount of social taste old Toady might be endowed with, he no doubt had some selfish ends in view; and being curious to ascertain beyond a doubt the reason why he was so constantly near the foot of the hives, I watched, and soon saw a big fellow dart out his tongue, and with equal celerity withdraw it along with a bee laden with pollen, which from exhaustion had fallen on the ground, unable to reach the floorboard of the hive. I saw the same repeated several times, not only then, but upon other occasions. And that which is important, I tried old Toady with dead bees, which he would not touch; but as soon as one was on the ground and began to move, he at once crawled towards it, out shot his tongue, and as quickly withdrew with the bee into his mouth. In less than ten moments I saw from three hives eleven bees thus eaten; and the feast would have proceeded, but I called the attention of the bees' owner, who immediately threw the toad over the garden-wall, by which it was thought a riddance was accomplished. But no. Although there were two corners to come round before reaching the garden-door, and a distance of about sixty yards, yet this toad found his way into the garden in a day or so afterwards, and there was soon found at the other end—making a distance of at least a hundred yards—where the bees were. This toad was blind of his left eye, and was thus recognisable. And he in my presence last year was thrown at least half a dozen times over the wall into a meadow field; yet on each occasion he was found again seeking the association of the bees. He would have been killed, but I pleaded for him; and only last week this one-eyed bee-devourer was detected within eight or nine yards of the hives, when the bee-master collared him, and threatened that if he again returned he would utterly exterminate him, took him off fully 250 yards, and threw him into a pond. I told his captor, whilst taking it away, he should cover up the wide-awake eye; for I joked that the fellow was no doubt noting his observations as he was being carried along, and would soon afford the bees the lovingkindness of his company again, which in fact was the case to-day, for there was old one-eyed Toady.

There can be no doubt toads devour many insects, and deserve our consideration; but the circumstance now related shows that they should not be allowed where bees are, for they destroy the heavily-laden ones which fall exhausted near to the hives.—W. Wooler.

OUR LETTER BOX.

Ducks' Nests (*B. S. P.*).—If the Duck pen has an earthen floor covered with straw, the Duck will choose her own nest in a quiet corner. She will make it. We seldom find them willing to endorse our selection.

LONDON MARKETS.—June 25.

POULTRY.

Still a scanty supply. Complaints are rife that chickens do not grow, and the weather casts an entire gloom on the trade by its paralysing effect.

	Each—s. d.		s. d.			Each—s. d.		s. d.	
Large Fowls	7	0 to	0	0	Turkeys	0	0 to	0	0
Smaller Fowls	4	6 ,,	5	0	Guinea Fowls	3	0 ,,	3	6
Chickens	2	6 ,,	3	6	Pigeons	0	8 ,,	0	9
Geese	0	0 ,,	0	0	Hares	0	0 ,,	0	0
Goslings	6	0 ,,	6	6	Leverets	3	6 ,,	4	6
Ducks	0	0 ,,	0	0	Rabbits	1	4 ,,	1	5
Ducklings	3	0 ,,	3	6	Wild ditto	0	8 ,,	0	9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JULY 3—9, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
3	Tu	Lycopus Europæus.	30.114—30.001	78—53	S.W.	.04	51 af 3	17 af 8	rises	☺	3 55	185
4	W	Serapias grandiflora.	30.147—30.106	79—46	W.	—	51 3	17 8	16 a 9	15	4 6	186
5	Th	Cypripedium calceolus.	30.300—30.237	79—48	W.	—	52 3	17 8	35 9	16	4 16	187
6	F	Exacum filiforme.	30.254—30.178	84—48	S.W.	—	53 3	16 8	49 9	17	4 27	188
7	S	Eriocaulon septangulare.	30.189—30.100	82—50	S.W.	—	54 3	16 8	3 10	18	4 36	189
8	Sun	5 Sunday after Trinity.	30.171—30.110	83—48	W.	—	55 3	15 8	15 10	19	4 46	190
9	M	Alchemilla alpina.	30.209—30.109	82—52	N.W.	—	56 3	14 8	27 10	20	4 54	191

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 75° and 51.2° respectively. The greatest heat, 97°, occurred on the 5th, in 1852; and the lowest cold, 37°, on the 4th, in 1855. During the period 129 days were fine, and on 102 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Plant every foot of ground that can be spared with *Winter Greens*. If the weather continues wet it is better to dig in, than to hoe up, weeds. *Beans*, sow a few Mazagans for late produce. *Cabbage*, sow a little seed. *Chervil*, sow for succession. *Endive*, continue to plant out about once a fortnight, to keep up a succession. Sow again. *Dwarf Kidney Beans*, sow the last principal crop. Earth up the advancing crops. *Leeks*, thin to one foot apart in the drills; the thinnings to be planted in good rich ground. *Peas*, earth up and stick the advancing crops. Sow a few more of an early sort, to come into bearing in the autumn. *Parsley* sow, to get strong before winter. Thin in time. *Radishes*, sow the Turnip-rooted sorts. *Vegetable Marrow*, stop the main shoots, to cause them to throw out laterals. Keep the hoe in motion on dry days. Cut *Box-edgings* in showery weather.

FLOWER GARDEN.

Late-sown annuals to be thinned as soon as they are well above ground. As the pods of Carnations and Picotees advance in size it is necessary to fasten some soft bass around them, to prevent them from bursting. Water Dahlias during dry weather. Trap earwigs and other destructive insects. Fuchsias in vases to be regularly supplied with water, as neglect in that particular will cause the bloom to drop. Thin the free-blooming sorts of Perpetual Roses, to insure by frequent attention fine blooms until late in the autumn. Remove all decayed flowers and seed-vessels from American shrubs, to give them a neat appearance, and to add to their strength for a fine bloom next season. The walks and grass edgings to be kept in good trim. A few pots of Mignonette sown now, and kept on the north side of a wall or fence, will come in useful in autumn. Separate Violets, and make fresh plantations. Cut Quick and Privet hedges with the shears; Laurels and other evergreen shrubs with the knife, as the shears would destroy the beauty of the leaves by cutting them.

FRUIT GARDEN.

See that the shoots of young grafts are nailed in or tied up as they advance in growth, to prevent them from being broken by the wind. Thin Raspberry suckers where there are too many. Four are generally considered sufficient for each stool. Give frequent attention to Grape Vines against walls. Train up young shoots from the lower part of the tree for bearing next year. Stop the shoots one joint above the fruit, and remove all superfluous shoots. Thin the summer shoots of Currants and Gooseberries. Protect fruit from birds. Hang up bottles of sugar and beer to entice and catch wasps.

STOVE.

Give abundance of air, and keep the house saturated with moisture. Weak, clear manure water to be given once or twice a-week both to the plants and to sprinkle through the house. Attend to Achimenes, Gloxinias, Gesneras, &c., they will be found useful in the autumn. Repot every plant that requires more room. Sponge the foliage of Orchids, or of any other plants that may require such an operation to keep them perfectly clean.

GREENHOUSE AND CONSERVATORY.

The borders of the conservatory where Camellias, Climbers, &c., are making their growth to be examined, and if necessary to receive a good soaking of water. Give an abundance of air both night and day in fine weather. Go over the twiners frequently, and regulate their growth before the shoots get entangled; but do not tie them too closely or in bundles, for they are never seen to advantage unless they are allowed to hang in their own natural and graceful manner. Look over the greenhouse plants that have been placed out of doors, and do not trust to light showers for watering plants in a growing state. Bud and graft Orange trees. Put in cuttings of Chrysanthemums for blooming in small pots.

PITS AND FRAMES.

Persevere in keeping up a mild, genial bottom heat to Cucumbers and Melons by stirring and renewing the linings. The plants to be kept properly thinned. Sow some more Cucumber seed for autumn use, or a succession to be kept up by striking cuttings of favourite varieties. Be careful in watering Melons, for if they are supplied with it too freely while the fruit is swelling off they are apt to crack; a slight sprinkling every afternoon is all that is necessary if there is the proper depth of soil.

W. Keane.

BEDDING GERANIUMS.

I have had eight letters lately from nurserymen in different and distant parts of the country, asking if I know and could tell them where they could obtain the *Crystal Palace Scarlet* Geranium in quantities; and I replied that I knew no more of it than I lately said about it in these pages. But if any of them, or others who wish for a stock of it, will look into the sixteenth volume of The Cottage Gardener (the volume for the summer of 1856), they will see, at page 271, that I myself was so recently hunting up the very same plant.

"After seeing two parcels which are now on the way, I shall name three or four kinds of bedding Geraniums, which will complete perhaps the largest collection that ever was made by one person. But there was a seedling of my own in the way of *Tom Thumb*, called *Beaton's No.* 50, alias *Shrubland Dwarf*, alias *Shrubland Scarlet*, which I want particularly." The experimental-ground for "decorative plants" in the garden of the Horticultural Society at Chiswick, under the inspection of the Floral Committee and the curatorship of Mr. Eyles, is now in the same condition as my Experimental Garden was the first season I announced it, with this difference—that among the earliest contributions to it was *Beaton's No.* 50 bedding Scarlet Geranium, alias *Shrubland Dwarf*, and alias *Shrubland Scarlet*—the very plant which he himself missed, and which he wished so particularly to

possess, after receiving all, or almost all, the bedding Geraniums which the friends of order, economy, and decoration could muster up and send to him; and that *No.* 50 is this now called the *Crystal Palace Scarlet*, according to the only authority we have on that subject —the garden "stud book," of which I have been the registrar for the last twenty years.

It was very singular that I should be the first to hunt it out according to the book. I saw it in 1858 among *Tom Thumbs* and others on the top of the Rose Mount at the Crystal Palace, just as the Crystal Palace people were beginning to find out its superiority over *Tom Thumb*. I told lately who brought it to the Crystal Palace, and how it came to be called *Trentham Scarlet*, also that I sent it to Trentham. Mr. Fleming himself told me long since that none of my seedlings suited the climate and soil of Trentham, but that they were useful for him to help him in crossing with other kinds to raise seedlings fitted for that peculiar locality; and in 1856 I worked in that information in The Cottage Gardener, Vol. XVI., page 381, after this fashion:—"*Col. Leveson* is the best pink or rosy pink *Lady Middleton, Trentham Rose*, and before *Le Titian; Trentham Rose* being *Lady Middleton* with a dwarfer habit. *Trentham Rose of* 1855 (not the original), is of the same close habit, with more red in the flower—two excellent kinds for such heavy or wet soil and climate as those of Trentham; and *Trentham Scarlet*, 1856, is the best bright scarlet flower I ever set my eye on, with exactly the same dwarf habit as the *Trentham Rose*, and all from my own model-habited kind, named after *Lady Middleton*, reduced in strength to suit Trentham Gardens. This is the kind of practical knowledge we stand so much in need of at the present day. Tell me your soil, subsoil, elevation, climate, and county, and your taste in colour, and I shall produce you a kind of Geranium to suit. That is exactly what Mr. Fleming has been aiming at since we put up our horses together ten or a dozen years back."

At the planting out of 1856, I had every Geranium from Mr. Fleming which he thought was worth trying in the Experimental, and his *Trentham Scarlet*, 1856, he told me, in a letter now before me, was a seedling proved in 1855. "It is much admired here," he said, "and I want your candid opinion of it. The habit is low and spreading, the flowers numerous, and very attractive. It is quite a new shade of scarlet." And I repeat that it is the best bright scarlet flower I ever set my eyes on. It is still the favourite scarlet with the "Queen is coming," the good lady who owns the Experimental Garden; and we managed this season to get up two matched beds of it for her queenship, and opposite to the match pair, and in the centre between them stands a bed of the true *Shrubland Dwarf*, alias *Trentham Scarlet* at the Crystal Palace, which is of the *Frogmore* breed, like *Tom Thumb*, and is as different from the *Trentham Scarlet* as any Geranium in the kingdom.

The Secretaries of the Floricultural and Pomological Committees, the Curator Mr. Eyles, and two or three of the bedding gentlemen of their suite, will be invited down next August, to see these beds in the Experimental and judge for the Horticultural. Here, then, is one practical instance out of many of the value and necessity of registering fine things. The *value* is in the record, for others to order the same things, and the *necessity* is to prevent careless observers from passing off spurious things on the public for the fine things themselves.

Take the last instance in our office for another turn of the die. A gentleman from the East Lothians sends to us to know if the Crystal Palace plant were the same as the *Improved Frogmore*. He was told by a most respectable London firm that it was so; and I wrote to seven of that class who were the most likely to possess it. I ordered half a dozen plants of it from each of them; and I told them all round, that I should pay them for the plants when my ship came home. But in that boisterous weather they all dreaded a shipwreck round some Cape or other, and they refused to trust me with the plants if they had them. But the truth is, and we must abide by it, the *Shrubland Dwarf*, with all its aliases, as far as I can make out, was never in the nurseries at all till this spring. There is one nurseryman, however, down near Birmingham, Mr. J. Cole, of the firm of Cole and Sharp, I believe, and if ever a nurseryman has had it, he is the most likely to be the man. Mr. Cole managed the Crystal Palace plant for me in 1844, 1845, and 1846. In 1845 he dogged out every plant I had of *Tom Thumb*, to make room for *No.* 50, just as the Crystal Palace people have done fifteen years afterwards. He was a very clever man, and had more power given him than any other foreman who was there before or after him; and if he is alive now he will recollect his prophesying that "the day would come in the which *No.* 50 would drive *Tom* out of all first-rate gardens." Mr. Cole contended that "*Tom* was too long in the arms ever to make a good vase plant," meaning that the footstalks of the flowers were too long for architectural symmetry. When he left me he took lots of cuttings of his favourite scarlet with him; but what he did with them, or with himself, I could never fathom, only that I heard that he is in business as above for himself; and if he has got this Geranium still he will make a fortune by it, and I hope I shall be free from any more writing about it.

No one has ever had a leaf of the true *Trentham Scarlet* out of the Experimental. It is, therefore, just as valuable now as the first day I had it, and no one shall ever get it out of my hands till I have Mr. Fleming's permission. That was the rule from the beginning of the Experimental. The true *Trentham Scarlet* is a much better bedding plant for some people than the Crystal Palace plant; but it does not make such a mass of bloom, or show so well at a distance. Wherever *Tom Thumb, Baron Hugel, Harkaway, Dazzle*, or *Royal Dwarf*, and such-like kinds go too much to leaf in the autumn, the *Trentham Scarlet* is just the right sort of plant, and it is the finest scarlet flower in all the Geraniums, though not the best bedder. I have filed every scrap of writing anent the Experimental Garden; and I shall let the Editors have a private sight of all the correspondence between Mr. Fleming and myself about these our best seedlings, in order to "get up and bar the door" against "those wha ha' wi' Wallace bled" (not).

One nurseryman from Derbyshire asks me also where he can get *Lady Agnes Byng* Geranium, the best of the *Improved Frogmores;* and I forgot to tell him in my letter that Mr. Salter, the great Cucumber grower of Ipswich, and Mr. Jeffries who raised the *Lady Middleton* Verbena, both grew and sold it when I was down there, and it was preferred to *Tom Thumb* by many people round Ipswich at that time.

When I was in correspondence with Mr. Fleming about his *Trentham Scarlet* and his, or *Patrick's Crimson Nosegay*, he told me he had seen another scarlet in Kent, which was the best bedder he had seen to that time. The name was *Beckenham Scarlet*. I never could get that kind to the Experimental; but some one had exhibited a fine specimen-plant of it at one of the Crystal Palace Shows, and it is booked somewhere in The Cottage Gardener since 1856.

That finishes my share of the present movement about rival beauties, and it fulfils the requirements of the stud book, which I shall not part with as long as I write about flowers. "The first in a village rather than aught else," except being his Holiness the Pope himself in Rome, being and having been my motto since I read of it as the motto of a Roman Emperor. I want to clear up, arrange, and register everything worthy of the fame of the stud book up to 1860, and to hand the information over at the end of the season to Mr. Eyles, who will succeed me in registering the good, the better and the best, of all

breeds for our turf; and I shall in future confine myself to the very best kinds.

There are hundreds of bedding Geraniums, thousands of Verbenas, Petunias, Calceolarias, and all the rest of them, now on experimental trial at Chiswick and the Experimental Garden. Chiswick is so much larger than my Experimental, and, therefore, so much more worth seeing. Go and and see it, for a Fellow of the Society can give orders to any respectable person to view the Society's Experimental Garden, and the Fellows are all over the country; and when you go home you can tell your neighbours the principal reason why I made my Experimental quite private at first. In every large place in the three kingdoms there is an experimental-ground, commonly called the "reserve-ground," because every good gardener who has one keeps it reserved from all visitors, because he is ashamed to let anybody see it. The place is always in a muddle from one thing or another. Families, friends, and foreign travellers never cease from the *seedomania*—from gathering, sending home, and receiving every trash of seeds from every quarter of the known world. The gardener has his drawers full of them, his reserve-ground is stuffed with trumpery—an experimental with them; and he is so much ashamed of it, of them, and of himself, for having so many and such mixed things under proof, while he is perfectly conscious that all the expense, the patience, and the trouble about them are not worth a Cabbage stump. All the new seeds from the shops must first be tried and proved in these experimentals before they can enter the lists of approved things; and of all things under the sun these new seeds are the greatest botheration to gardeners, for not one out of ten of them is ever worth sowing, or being shown to any living mortal after they are up and in bloom. Then there are the whole race of stop-gaps, gaping all over the "reserve," some up, some half planted, some just coming in from the flower-beds, some going out to stop that gap, and some in some of the stages all the way to desolation, making the experimental the only eyesore-garden round about. And yet people are so innocent in their ideas of things of which they have no real idea at all, are found in every age ready and pushing to see the very and the only thing about one's place which is not worth seeing, as I can fully testify from my old practice and present experience.

Notwithstanding all that, every garden worthy of the name, however small, ought to be so far an experimental, as to have a piece of reserve-ground—not fit to be seen at all times. I shall give an instance in point from last week, when I was caught passing the garden-gate of Mr. Walton, the author of the Waltonian Case; and nothing would do but I must go in and see the experiments. Mrs. Walton had the original Waltonian Case full of fresh-planted seedling bedding Geraniums, which are now springing up out of doors in the beds where different kinds were planted together last year—another proof that no amount of cold will hurt exotic seeds lying the whole winter in well-drained ground, and a refutation of the assertion that the Waltonian Case is fit only to strike cuttings in. Long-stemmed old plants of *Nierembergia gracilis*, or *filicaulis*, from the greenhouse, planted to trail down over the vases, are also a good experiment; and the *Spergula pilifera* is just taken in hand in earnest.

D. Beaton.

PEACH AND NECTARINE TREES SHEDDING THEIR LEAVES.

Upon entering my present situation in 1851, I found the Peach and Nectarine trees in a very unhealthy state, the original trees had died from natural decay, and young ones had been planted without removing the soil; consequently they did no good. Finding such to be the case with them, I had the top spit of a good loamy pasture dug up and laid in ridges in August of that year. In November I had the soil from the Peach-border removed. This border is about 220 feet long by 16 feet wide (the wall being 9 feet high). I had this removed to the depth of 2½ feet, and had it replaced by the soil above described to the depth of 3 feet, to allow for sinking, having first made a drain the length of the border (the subsoil is mostly red clay). Upon this I planted new trees which have done remarkably well until this season, having scarcely a diseased branch upon them; and last season, when Peaches and Nectarines were almost a total failure in the majority of places, with the assistance of Haythorn's netting I had an abundance; and when Messrs. Low & Co.'s traveller called upon me last summer, he told me that he had not seen such a crop anywhere. Now I come to the worst part of the affair, and one which distresses me very much. This spring the trees presented the usual appearance, they broke and blossomed well, with every appearance of a full crop. All went on well until they had made shoots two or three inches in length, when they began to lose their foliage, the young wood began to get spotted, the sap began to exude from the branches; and now several of them have scarcely a leaf upon them, and all are more or less affected. I now ask your opinion and advice. How can I restore my wall of trees? I cannot but think that all this has happened from an inactive state of the roots, arising from the excessive cold, wet spring which we have had (our soil being naturally heavy and cold). Some of the young wood was not quite so ripe last pruning time as I had hitherto seen it, which I attributed to the early frost which we had last October depriving the trees of their foliage before the usual time.—L. A.

[Two causes have contributed to the unhealthy condition of your trees. The one being the frost of last October, and the other arising from the roots having penetrated into the red clay subsoil. For the former there is no remedy now. In autumn dig a trench round the roots, and cut off all those which have extended into the subsoil; make a platform of hard material between the roots and the subsoil, so as to prevent them again running down, and then fill in the space.]

GREENHOUSE STAGE.

I shall take it as a favour, if you will give me your opinion as to the best plan of stage for a lean-to greenhouse? My present arrangement is as follows—viz.:—Greenhouse in middle with a vinery at each side, but separated by doors and glass. The entrance to the greenhouse is in the centre at the front, and the stage is a kind of pyramid, having shelves all round, and gradually lessening to the top, where there is only one shelf.

Now, I find there are several inconveniences attending this arrangement. In the first place, the plants are very much drawn, some plants being nearer to the glass than others; and, again, those on the back side get very little sun, if any, as also the sides. The situation is south.

What I propose to do is, to take the stage down and reconstruct it in the following manner. (I should mention, the house is about 12 feet wide and 16 feet from back to front, and the same in height at the ridge). I propose to make a path straight through the centre, 3 feet wide from the door, with a stage at both sides rising step by step until sufficiently high to allow a person to pass underneath, then I would carry it across the entire width step by step. A plan of this kind, it appears to me, would have a much better effect in showing off the plants and flowers than the present arrangement, and they would also be nearer to the glass.

Another idea struck me—viz., instead of the stage sloping towards the front as I have just stated, to slope towards the path all round, something in shape like a horseshoe; but I am inclined to think the former plan the most desirable for the good of the plants.

What I want to know more especially is, the distances between each shelf, and the different heights, so as to accommodate fair-sized plants?—A Subscriber.

[So far as we understand, the size of the house is somewhat awkward—twelve feet in length, and sixteen feet wide from back to front. If your plants are thin enough on the shelves, and you give plenty of air, and there is no shading of the roof by climbers or otherwise, we do not see how the distance from or closeness to the glass will cause or prevent drawing of the plants. The Crystal Palace pretty well settled all that. Drawing takes place chiefly from shade, and too much heat and too little air. We can imagine plants drawing when kept long on the north side of the stage; but by having part of your stage facing the north,

you will keep plants much longer in bloom than if they were placed on the south side. Again: When you wish plants to begin to grow after you have pruned them, that place would be the best for them; and when fairly started, you could turn them to the south side to mature and ripen their growth. We presume you have a pathway all round your present stage, and thus the end-stages would look nice from each vinery at the ends of the greenhouse. Were we to make the most of such a house, both for growing and exhibiting flowering plants, we would have a broad shelf all round, except at the doorways, and just such a pyramidal stand as you have. Did we wish to grow as many plants as possible in such a house, we would have a shelf round the front and ends, and a sloping stage from back to front in the usual way; the highest shelf being just so far from the glass as we wished to grow plants in height. For small plants and cuttings these steps and shelves might be six inches apart. For plants, such as Geraniums, intended to be fifteen to eighteen inches in height, the shelves should be a foot distant from each other. This for mere growing and displaying an even bank of flowers from the back to the front would be the best; but it would admit of little of the artistic in the arrangement, unless by introducing starers, and the ends would not look well from the vineries. Such a stage reaching the back, but the two ends also in steps, would, therefore, show the plants better. Your proposed arrangement will give you more variety in outline, but scarcely so much direct sunlight to the individual plant. It will not be so striking on entering from the front door; and, so far as we can judge, not only will the backs of the plants be seen from the vineries, but to get to either of these vineries from the greenhouse, we presume you will have to pass under the stage to the glass door communicating between them, and in our opinion this arrangement of itself will destroy half of the interest the flowers would otherwise give you. If you are satisfied, however, we have no doubt that you will make it answer, and will contrive to take your lady friends through that covered passage, when there would be no danger of drops from pots, or shelves, staining pretty dresses and sweet bonnets. As far as we can judge, any arrangement that would prevent comfortable thoroughfares between the three houses, or shut out the beauty of the greenhouse from either vinery, would be objectionable; but we by no means say that you could not make your plan answer well. If the plants were to be seen only from the door in front and the middle pathway, there would be none of these objections against your plan. Perhaps, after all, we misapprehend you. Meanwhile, if you disapproved of your back stage, we incline to think that a shelf round the ends and front, and a stage sloping to the ends and front, with a walk round the ends and front, and communicating with the vineries, would be a good arrangement. Like you, for general purposes we prefer slits of wood—say two inches square, to broader shelves, more especially when saucers are used for plants that do not like ever to be dry. Many things in winter would prefer standing on these slits (fixed two inches apart) to standing on a wide shelf, which might retain the moisture too long; but in practice the mere arrangements of this kind are of little importance. If we have misapprehended you, write again and give a pencil sketch of the house and the stage.]

WALL TREES DISEASED AND DECLINING.

My garden is five miles east of Malvern; slopes from east to west; the subsoil is stiffish red clay, vegetable soil about fourteen inches deep; enclosed on the north with a wall eight feet high, on the south side of which are Peach, Nectarine, and Apricot trees, some fourteen years old; they have been healthy, and fruited well till 1858. The frosts of 1859 killed the lower branches of the Peach trees, but did not seem to affect the Nectarines. The Peach trees are now in a sickly, I may say dying, state, the leaves knotty and curled, and all but the upper branches dead. The Nectarines in nearly as hopeless a condition. Two young trees planted in autumn made a start of six or eight inches have died back. Two Nectarines in pots for a winter orchard-house started well, and have also died back. The Apricot trees are looking healthy, but they blossomed late, and set very little fruit. The trees have been syringed with tobacco, and all usual care has been taken.

The border has a good slope from the wall, and is usually cropped. The soil in which the young trees were planted had been under Black Spruce for three years: would this be deleterious?

I shall be much indebted to you to give me any information your experience may suggest as to the cause of the destruction of the trees, and any hints as to future treatment.

In this garden I would observe that the Brussels Sprouts, Savoys, Borecole, and Cottager's Kale were unusually fine and plentiful the last winter.—C. G., and an Old Subscriber.

[Your trees are evidently suffering from the effects of the severe frost in October last. We know many instances where Peach, Nectarine, and Apricot trees are completely killed, and even those in cool orchard-houses did not escape receiving a certain amount of injury. Cut out all the dead wood, and encourage the summer's growth to replace that which has been killed. The roots have got into the clay subsoil. These should be cut away, and by manuring the surface, mulching in summer, and not digging the border, roots should be encouraged to occupy the upper soil.]

TREATMENT OF PELARGONIUMS AFTER BLOOMING.

Can I pursue any better course than, when the plants have done blooming, to wait for the wood to ripen a little; then to cut them down to within one inch of the old wood, and leave them in their places in the greenhouse until they have made shoots an inch long; then take them out of the pots, shake off all the mould, prune the roots, and repot them in smaller pots; put them back into the house for a couple of weeks, and then place them out of doors in an ash-bed, protecting them only from heavy rains until housed for the winter?—G. D.

[Your proposed treatment of the Pelargonium is quite right. Let the plants get dryish before pruning; and for a particular shape you may cut back to a single bud, or to a spur containing several buds, according to the form you wish to give your plant afterwards. In a week or so a short essay on Pelargoniums in pots will be printed. The plant you enclosed is *Kalmia latifolia*. Buy our "Garden Manual" for the information you need.]

CROSSING POLYANTHUSES.

Can the observations made at page 150 upon the authority of Mr. Beaton be really in seriousness? I take the words of "kinds of Polyanthus" to be varieties, such as the hose-in-hose, and any common Polyanthus, and Polyanthus of various colours, shapes, and sizes. If so, I must say it is inexplicable to me how any experiments made for forty years—nay, forty months—can be adduced as a ground for such a sweeping assertion, and also made in such extreme language. Although I have not thus experimented for forty years, I have for more than two-thirds of that time; and can instance many facts to prove most decidedly that the Polyanthus crosses with the greatest case if very ordinary care and skill be used.

I as a boy had a Primrose of a dark colour, with the calyx converted into leaves of at least an inch in length, and placed a wild Primrose beside it; and this last produced seedlings, one of which, whilst it retained the colour of its mother, inherited the calyx of its father. The case I also mentioned about the hose-in-hose fructifying the yellow Polyanthus is indisputable; for I crossed every pip of this last—some with a hose-in-hose, and others with the common Polyanthus of various colours, and they produced offspring, which evinced a likeness of the two parents, and were of nearly all shades, from brick colour to a brickish scarlet, and this from a yellow flower, which uncrossed will only produce yellow offspring.

It would be extremely interesting to have Mr. Beaton's own views on his experience; for his want of success is so opposed to mine, that I cannot help thinking it must arise from some cause which to discuss would result in adding to our stock of knowledge on this very instructive and interesting process.

Mr. Darwin, in his talented and deeply interesting work upon the origin of species, states at page 48 to this effect, that although the Cowslip and Primrose differ in flower, and odour, and bloom at slightly different periods, grow in somewhat different stations, heights of mountains, and geographical ranges, yet Gaertner, after very numerous experiments and most careful observations, crossed the two.—W. Wooler.

[The "observations" and the "sweeping assertion," referred to in reference to crossing Polyanthus, are in my identical words; and they were made, really and seriously, as my firm conclusion;

and that conclusion has been forced on me against a preconceived opinion quite as strong as that asserted by Mr. W. Wooler.

I am willing to discuss the whole subject of cross-breeding plants, and the theories which have been formed on that subject for the last hundred years, or from the reports of Kolreuter, the German father of cross-breeding, in the Acts of the Petersburgh Academy, to the last experiment on the "origin of species" by the best cross-breeder of the present day—the account of that last experiment being published in The Cottage Gardener week before last.

The first thing, however, before any useful progress can be made in our knowledge on the subject by discussion, is to divest our minds of nine-tenths of the ideas which have been entertained on it upon inconclusive evidence.

The first and greatest error on cross-breeding was propounded by Mr. Knight, our greatest physiologist. He assumed, in the "Transactions of the Horticultural Society," and in the "Philosophical Transactions," that a fertile offspring between two parents was conclusive evidence that the two were of one species; and he took it for granted, as a consequence, that a barren offspring was direct evidence that the two were of different species.

This hypothesis was received by botanists as a sound theory on the authority of its author, and a vast deal of unsound reasoning and writing has since been made on that text. Dr. Lindley went so far as to classify the reasonings, in order to facilitate the labour of cross-breeders. The former he called crossing, the latter muling; and a whole mountain was thus placed across a plain path, and thousands have been benighted and lost upon that mountain. The way Nature has is this: One pod of seed, without crossing, will produce a fertile, a half fertile, and a barren plant—a fact I have proved a thousand times. Two of the most distant and dissimilar species of any known genus of plants, if they will cross at all, will produce seedlings fertile, half fertile, and barren. In another year the same parents will produce all fertile seedlings; and at another cross the progeny may be all barren, or be a mixture of all the cases. That also I have myself proved in numberless cases; and the two nearest species in looks and habit will produce barren seedlings among half barren and fertile ones.

I have not read Mr. Darwin's work on the origin of species; but I can originate botanical species almost at will—that is, produce a plant different from all other plants, which will reproduce itself pure from seeds to the end of time—that I am quite certain of. And farther, I assert most confidently, that as far as crossing has yet proved, there is not the slightest natural difference between a botanical species and a cross-bred variety which will reproduce itself from seeds.

I have an opinion which I have held for years, but I can never prove it—therefore it is not of the smallest value in discussing a point, but it may be practically useful to some one: it is, that we are wrong in nine times out of ten in saying a seedling is barren. I hold that it may only be barren under the circumstances of soil and climate. Some of our very finest plants are barren in our climate. Are they so in all climates? I think not.

Well, on the Continent, Gaertner, the authority produced by Mr. Wooler, has done ten times more damage to cross-breeding than the President of the Horticultural Society. His reports were received both here and abroad as sound gospel. He has been challenged to prove some of his reports, but he never did it; and no one will ever prove one out of ten of Gaertner's crossing experiments, for they were not capable of proof. So, you see, before you can discuss the subject profitably, you would need Hercules to clear the ground first.

There are only two facts yet learned from all the cross-breeding that has been effected. The one is, that no two plants belonging to two natural genera will cross. The second fact is, that no accidental sport can be transmitted to a second generation by means of crossing, as we know the natural peculiarities of men—their idiosyncracy, as they say, are constantly so transmitted. And there is a third fact all but proved, and it is this—that no reliance can be placed on crossing any plants if one of the parents or both sport naturally from self seeds. The Polyanthus belongs to this third class; and the hose-in-hose variety of it belongs to the second fact. The hose-in-hose is an accidental sport, and you cannot transmit it to the next generation by crossing. A common Polyanthus may be crossed with a hose-in-hose rarely; and some of the seedlings may come hose-in-hose, because there is something in the soil which predisposes the seedlings to that freak. But the hose-in-hose would come without crossing just as well; or, if it were truly transmitted by the pollen, every one of the seedlings must be hose-in-hose. Then, if that happens, prove it another way. Grow the two parents one year in very different soil or in another garden, and the second year cross them; and if the peculiarity of the pollen reappears in that batch also, and in all the seedlings, the case is proved, and not without. Even then there is proof to the contrary recorded at the last meeting of the Floral Committee.

A mother, hose-in-hose *Azalea amœna* was crossed by Mr. Standish with *Azalea lateritia*. The plant, or seedling, follows the mother in every respect, except the size of the flower and the hose-in-hose. It is one of the very best seedlings of the new race, besides proving conclusively that the hose-in-hose sport is incapable of being carried through to the next generation, even on the mother side, to a certainty, or in a way one could depend upon. Like the Polyanthus, some of the seedlings might come hose-in-hose; but who can prove that that should be by pollen when there is positive proof to the contrary?

The yellow Polyanthus, which Mr. Wooler mentions as coming true from seed, if not crossed is the most curious in England, or perhaps in all the world; for there is not another Polyanthus, I believe, that would come true from seeds. Look at my "Good Gracious" yellow Polyanthus, which will only give one true seedling, or yellow of any kind, out of very nearly four thousand seedlings just proved in ten different situations. I shall be glad to exchange three of it for one of Mr. Wooler's kind. I write "kind" or "sort" in preference to "species" or "variety."—D. Beaton.]

NEW AND RARE PLANTS.

Phalænopsis grandiflora (*Large-flowered Indian Butterfly-plant*).

This Orchid is a native of Java. Introduced by Messrs. Veitch & Sons, of the Exeter and Chelsea Nurseries. Flowers white, with a yellow stain on the lateral lobes of the lip.—(*Botanical Magazine*, *t.* 5184.)

Scutellaria incarnata, *var.* Trianai (*Flesh-coloured Skull-cap*, var. *Trianai*).

Native of Bogota. It only differs from *S. incarnata* by having smaller glabrous leaves, and deeper scarlet flowers. Bloomed during spring in the Kew stoves.—(*Ibid.*, *t.* 5185.)

Chysis bractescens (*Bracteated Chysis*).

Native of Mexico. Introduced by Mr. G. Baker in 1840. Flowers white, with large leafy bracts.—(*Ibid.*, *t.* 5186.)

Amorphophallus dubius (*Smooth-headed Amorphophallus*).

A very singular Arum-like plant from Ceylon. "Our plant flowered in a warm stove in June, 1858, and gave out a stench so abominable as almost to render the atmosphere of it insupportable."—(*Ibid.*, *t.* 5187.)

Tradescantia Warczewicziana (*Warczewicz's Spiderwort*).

A handsome native of Guatemala, deserving a place among our stove plants. Easily propagated by cuttings. Flowers purple-lilac, numerous, and in constant succession during spring and early summer.—(*Ibid.*, *t.* 5188.)

Vanda gigantea (*Gigantic Vanda*).

Native of Burmah, growing on *Lagerstrœmia regina* on the banks of the Tenasserim river, near Barlavo. Bloomed for the first time at Messrs. Veitch & Sons', Chelsea, in April of the present year. Flowers three inches in diameter; golden yellow, blotched with cinnamon; in spikes.—(*Ibid.*, *t.* 5189.)

CULTURE OF THE ROSE IN POTS.

(*Continued from page* 196.)

Summer Pruning.—Encouragement in summer should be given to the plants, and let them be so pruned and thinned as to have the best-placed and strongest shoots preserved. Thin them out by cutting away close to the stem all superfluous or weak shoots. These last make excellent cuttings. This summer pruning should be done immediately after the summer blooming is over, and no autumn flowers should be allowed to bloom on plants that are to bloom from April to the end of May the following year.

Autumn and Spring Pruning.—The month of November is a good season for pruning Roses in pots to flower in the early

spring months. For late blooms prune in March. Previous to pruning any kind of Roses, it is necessary to know the habit of each group, and even the habit of different varieties in each. All strong growers, it may be remarked, in general should, after being properly thinned, have their shoots shortened in only two-thirds of their length. For instance, observe in Hybrid China varieties that *Blairii No. 2*, *Fulgens*, and *Vivid*, are strong growers, and require little shortening in. Others are weak growers, and these should be pruned in so as to leave from two to four eyes on each shoot. Then, again, the more common Moss, Provence, and French Roses should all be pruned in pretty close. Bourbons and Hybrid Bourbons are, as it were, intermediate in strength, and should be pruned moderately—that is, the weak shoots should be cut clean out, and the rest thinned, and so left as to form a well-balanced tree, and the shoots that are left cut in one-half of their length. Noisettes, on the other hand, should be so pruned as to leave from three to seven shoots, according to the strength of each tree, nearly their full length. China and Tea-scented varieties require quite a different mode of pruning. It may be designated as the Pollard pruning. At the proper seasons for early and late pruning, cut off all the shoots close to the ground or soil in the pot. Many shoots will push forth; these must be thinned early, reserving the strongest, and those should be equidistant from each other. As they grow place a small stick to each, to be removed when the form is fixed, and draw the shoots, excepting one in the centre, from each other. I shall treat, however, more fully on this point under the next head—Training. The large class known as Hybrid Perpetuals, may be pruned at any season, excepting the dead of winter, the cultivator may please. They are the most manageable in pots of any class, and bloom most abundantly at almost any season of the year with proper heat and management. This class should be cut in to two or three eyes, and thinned out moderately. There are two points the cultivator of Roses in pots should attend to. The first is, to cut and thin out the shoots according to the habit of each variety he may grow. The second is, to cut them so that when they grow they may form handsome trees.

There are two forms he may aim at—the pyramidal and the bush. To form a pyramid, he will leave the central shoot the longest, the next pair or triad a few inches shorter, and the lowest shoots about the same length, but more spread out and a little depressed. Every shoot the following season will be doubled, or, perhaps, tripled, and then the form aimed at will be perceptible to the most careless observer. The bush form, on the contrary, will have no central shoot. This mode is resorted to for such kinds as are naturally of a dwarf habit. The pruning to obtain this form is something like that adopted by a gardener with a Gooseberry bush. The shoots are all cut in equally as to height, and left at equal distances from each other. It is evident then that they will grow alike for height and strength, and the plant so formed will, when in bloom, present a dense mass covered with flowers.

Roses of a climbing habit are sometimes grown in pots, and when so done should be pruned on the long-rod system, and for this reason—that they produce their flowers from lateral spurs produced on the previous year's shoots: hence, when the shoots are obtained they should only have the ends of their shoots shortened in, excepting one or two, which should be cut down nearly to the bottom to produce rods to succeed those that flower that year. By thus having, as it were, two sorts of shoots growing together, a constant succession of bloom is produced every year; the branches that have bloomed being cut down at the pruning time, or even as soon as the flowers fade, and thus more room and air will be given to the shoots that are to bloom next year.

I have rather dwelt upon this part of cultivating Roses in pots; and I trust the reader will pay particular attention to the directions for pruning his Roses, as upon that being done right depends in a great measure his success in obtaining well-formed trees, and a plentiful crop of flowers.

Training.—In order to form handsome bushes and display the flowers to advantage, some art is needful. Some few may do without any help; but, in general, the greater part will be all the better for a little training. If the shoots are numerous, the leaves will require light and air. To open them out, twist a wire or a strong piece of twine tight round the pot, pass under it a piece of bast mat, and bringing it round the lowest branch, drawing it down towards, or, as the case may be, close to the rim of the pot. Go round the plant and repeat the operation to every low-growing branch. Then thrust in the soil some neat sticks round the plant, and draw out the next circle of shoots and tie them to the sticks, inclining them outwards. If the plant has been pruned for the pyramidal form, place a stronger stick to the central upright shoot and tie it to the stick. If the plant is large, a few more sticks may be necessary to tie shoots to, to fill up the space between the central one and the first circle of sticks. This will give the desired form, and very little more care will be needed to keep the shape and display the bloom outside the shoot. In the bush-mode the sticks may be placed regularly, in order to form a uniform and regular bush without any overcrowding in any part.

If the bushes are very tall, a neat wire hoop fixed about half way up the plant will be very convenient to tie the shoots to, and thereby do away with such a forest of sticks.

To train climbing or twining Roses, procure some long sticks, and thrust in four or five according to the strength of the plant, a short distance from the edge of the pot. Tie a wire hoop to the top of the stakes, and tie each stake at equal distances from each other to this hoop. This will help to keep the sticks firm in their position, though not absolutely necessary.

Having fixed these stakes, then take one of the long shoots and carefully twine it round the outside of the sticks, tie it every six or nine inches to the sticks as it passes by each, and finish at the top with a tie near the end of the shoot. Then take the next shoot and twine it in a similar manner, keeping each at a regular distance from its neighbours, and so proceed till every shoot is tied to the stakes. The training of this class to stakes should be done just after the fall of the leaf. If pruned as directed above, the young yearling-rods may be tied in as they grow, alternately with those that are blooming. They should be allowed to grow their whole length; because, if stopped, either designedly or by accident, the buds would break and thus spoil to some extent the next year's bloom.

I would just notice here, that all suckers must be diligently extirpated, and also all gross soft shoots displaced as they appear. In pots, moderately strong and equal-in-strength shoots are the best and should always be preferred. T. Appleby.

(*To be continued.*)

MEETING of the ENTOMOLOGICAL SOCIETY.

JUNE 4TH.

J. W. Douglas, Esq., President, in the chair.

Mr. S. Stevens exhibited *Callidium luridum*, taken alive at Blackheath. Also two specimens of the grand Butterfly *Papilio Antenor*, captured in Madagascar by Mr. Layard.

Mr. F. Bond exhibited two individuals of *Deilephila lineata*, taken at Brighton in May. Also specimens of the chrysalis of *Sphinx convolvuli*; and a monstrous cocoon of *Eriogaster lanestris*, formed by three larvæ working in concert.

Mr. McLachlan exhibited a Cecidomyia, reared from galls on the common Broom. Mr. Ianson various rare Beetles from Perthshire; and Mr. Stainton several small Moths reared from larvæ sent from America and Germany.

Mr. F. Moore exhibited a living Moth of the Eria Silkworm reared upon the Castor-oil plant. Mr. Gorham various rare Coleoptera taken near London; and Mr. Stainton specimens of *Deilephila lineata*, taken at Torquay and Lewisham.

Mr. Tegetmeier gave an account of a remarkable family of the common hive Bee which he had reared, there being no queen in the hive; certain workers, differing from the rest in shape, having, although unimpregnated by the males, laid eggs in the cells in an irregular manner, sometimes as many as five eggs being placed in a single cell.

Mr. Westwood exhibited some leaves of the Beech, which had been mined by the larvæ of *Orchestes fagi*, received from Professor Harvey, of Dublin, who had informed him that the trees for a wide extent in the south of Ireland had been blighted in the manner shown by the specimens forwarded.

Mr. S. Stevens exhibited a large species of Gad Fly (Tabanus), from the gold coast of Africa, which is exceedingly troublesome to horses, sucking them in the same manner as the English Cleg, but to a far greater degree; so that in the course of six or eight weeks the horses die from exhaustion and irritation. It was questioned whether this Fly might not be the true Tsetze of Dr. Livingstone.

Mr. Baly read a memoir on the family Sagridæ; and Mr. Smith a notice of the *Cynips quercicola*, of which he had reared not fewer than 12,000 individuals without the occurrence of a single male, which sex, he consequently believed, does not exist

in this genus. He also read descriptions of new Hymenoptera from New Holland and New Zealand.

Dr. Wallace read some observations on the question of the indigenousness of certain Lepidoptera, especially Sphingidæ, occasionally taken in this country.

PRUNING.

Pruning may be defined to be the removal of a branch, or branches, of a tree, to facilitate the accomplishment of some particular object which the cultivator has in view. As an art, it is most generally applied to fruit-bearing trees or shrubs, and the gardener who is not skilled in this practice can never rank high in his profession. By its excessive use shoots too gross are produced, and the most excessive luxuriance is induced. One of its objects is to regulate the form assumed by a tree. Training does much in this way; but the knife is used to obtain the skeleton form. It behoves every one who intends practising this art, to attain a certain amount of physiological knowledge; and having this much, practice only can make an expert pruner.

It is quite amusing to witness the sympathy between the head and hands of an expert pruner; to mark how he foresees what is necessary to be done, and the results which will follow, and to observe the rapidity with which his hands wield the pruning-knife. To get a correct knowledge of the use of the knife, every young gardener ought to pass at least two seasons in a first-rate nursery. To commence with the grafting, trimming up stocks, budding, removing the clay and tying, and afterwards thinning the shoots of fruit trees, and training them in. This amount of probation may seem excessive to many of our younger friends; but it is, I opine, quite necessary to lay the basis upon which to build up the superstructure of good gardening. It was my fate to have been thus treated myself. When I was a mere boy I was sent to the then famous nursery of Lee, the father of the present proprietor of the Vineyard, with instructions that I should not be pushed on too rapidly, but that I should begin at the bottom and go through every detail of the profession. I went, therefore, after leaving a boarding school at Christmas, early in the ensuing season to this place, about the middle of March, and, oh! I shall never forget one sharp frosty morning being sent to clay grafts. There were four of us. The first, a very clever knifeman, putting on the grafts like lightning; the second, quite an adept at tying; the third, my unhappy self, with hands embedded in wet clay, and quite unable to warm them by friction; and the fourth, a person with a pot of warm wood ashes, who patted round and finished off the mass of clay which I had put on, and who added much to my annoyance in a waggish manner, by constantly exciting me to work, saying to me, "Come young man, now pray get on, and allow me to progress," until at length I could not resist giving vent to a flood of tears brought on by acute agony in my hands, and irritation of my temper. Thus I went through every detail of the business; and in the summer found myself in clover—tying buds, and such-like amusements, being my only occupation.

Since that time I have reflected "many a time and oft," upon this incident, and have ever felt a debt of gratitude to that judicious friend at whose suggestion I was placed in this unenviable position.

I am, I feel, losing sight of my theme by this digression, which I have introduced to show how important it is to be well and thoroughly grounded in the elementary principles of what we are to profess. The man who is called upon to direct the operation of others, is not fit to do it if he has not himself passed through the practical ordeal of them. I remember well the treatment of young men at Chiswick thirty years ago, which was certainly very arbitrary and tyrannical; but those who, like myself and Sir Joseph Paxton, had the moral courage to put up with it, are all the better men for it.

The period of producing fruit is sometimes changed by pruning. This is done with the Raspberry. The strong canes which would otherwise produce early fruit, are cut down to within two or three eyes of the base; and from these bases shoots are produced by the accumulated sap, which cannot, from their exuberance, form their fruit so soon as those of more moderate growths. In other fruits the destruction of the present crop often leads to the formation of another one.

It is an axiom in pruning, that in order to gain vigorous growth it should take place early, and late if a contrary result is desired. The roots are constantly accumulating sap; and if branches are removed late in the season, much that has been stored up is also removed with them, and by its removal fruitful qualities are often induced in plants.

The practice of pruning the roots of transplanted trees is one which is very generally practised, but it may be questioned whether it is not quite as well omitted as practised. It is, however, a general rule amongst "practicals," to cut a certain quantity of branches from a removed tree, and also to reduce its roots in the like proportion; but they ought not, in my opinion, to have their roots curtailed, because from their incapacity, buds and leaves being few, they are unable to form roots quickly; and if further they are deprived of their existing roots by the awful manipulations of an indiscreet pruner, they will probably languish and die. I have made many experiments in transplanting, and fully concur in all that Sir H. Stewart has done and written on that subject. No small branch or slender spongiole should be sacrificed in the operation, if we wish to preserve the primitive form and beauty of our trees.

But we have been speaking of pruning to induce luxuriance, let us now speak of that which is to induce productiveness. Of this part, root pruning manifests itself very prominently. It is an art which has been long practised by the very best gardeners, and one which is most truly the gardener's friend. It enables one to have the most perfect control over the energies of a tree, and, having willed that it should bear, to make it do so. In performing this we would not take a spade and cut through all the body of strong and fibrous roots at once, as is too commonly done; but we would begin a considerable distance from the tree, and disentangle carefully every fibre, and having spread abroad the network of roots, would carefully select those gourmands which we thought overfed the plant, and remove them by cutting them out, insuring as a sequence a productive habit.

Numerous, indeed, are the varieties and modes of pruning the different species of plants for various objects. The two principal times for performing these operations being midwinter and midsummer; at the latter season the gardener arranges his branches to form the tree, and in the winter thins and regulates them.

There is, in common parlance, a time for pruning, and it is but too fashionable a failing to do all at that one specified time; but we would caution all pruners to weigh well their object before commencing. If they want additional luxuriance let them begin early in the season, when the roots will be slowly, but constantly storing up supplies of food; and if, on the contrary, they wish to weaken the vigour of their plants, let them prune late, thereby removing much of that hoarded supply which would be expended on the production of strong luxuriant wood.

Henry Bailey, *Nuneham.*

WHAT IS THE DIFFERENCE BETWEEN A SPECIES AND A VARIETY?

In a very able periodical, "Fraser's Magazine" for the present month, I saw it stated that "*Varieties* when crossed produce fertile offspring; *species* either do not cross at all, or when crossed their offspring is sterile." Is this an accurate distinction between a variety and a species?—Inquirer.

[Certainly not in the case of plants; and in this opinion we are sustained by Mr. Beaton, who has more experience in hybridising and crossing plants than most men. He writes to us as follows:—"Varieties, as far as I have tried, will give an intermediate offspring when crossed, provided that both parents would in every instance come quite true from seeds. But if either of the parents has the slightest inclination to sport, there is no reliance on obtaining a true cross-bred seedling. All the varieties that have been hitherto crossed produced fertile and barren seedlings indiscriminately; and the very same result, and none other, has been the case with all species that have been crossed. Very many of the most trifling varieties from *crossed varieties* come quite as true from seeds as the most permanent species of botany. Yea, more; a certain peculiarity will run down from one to four, five, six, and more generations of such seedlings, both in varieties and in species; but in truth and in Nature there is no difference between a species and a permanent variety, meaning by the latter any variety which comes true from seeds—as, for instance, the large-flowered variety of Mignonette; that variety is just as true a species as any species in the whole circle of botany.

"All the attempts at classifying, and the pretended results of classifying, the results of crossing species and varieties, and all

that is written on the reversion of crossed species and varieties, and the whole theory of mules, are absolutely and altogether the very reverse of innumerable facts within my own personal knowledge."

Every year brings fresh facts to our knowledge sustaining the opinion that the species both of animals and plants originally created were comparatively very few. Diversity of climate and of food during the lapse of ages has wrought changes which naturalists find great difficulty in explaining, so they cut the Gordian knot by concluding that each changed form was originally so created. That in many instances they are wrong has been proved. Wheat has been shown to be an Ægilops altered by cultivation; the *British Queen* is a descendant from the Wood Strawberry; the *Ribston Pippin* from the Crab. Many a plant on a mountain side differs so much from the same plant growing in a stream at that mountain's base, that in more than one instance botanists have described them as distinct species. We think the time is not far distant when hosts of species will be obliterated, and many genera merged into a few others by some modern Linnæus.]

THE SCIENCE OF GARDENING.

(*Continued from page* 200.)

The cuttings from common deciduous trees—such as the Filbert, Gooseberry, Currant, &c., are, as in *fig.*13, of the previous year's shoots, and cut just above and just below a bud.

Fig. 13.

Fig. 14.

A Cutting with a Heel (*fig.* 14) is that in which the shoot is taken off with a slice of the branch from which the root sprang.

A Strangulated Cutting is often employed by French gardeners when a common cutting from the same tree produces roots with difficulty. A wire ligature is twisted tightly round the shoot immediately below a bud. (*Fig.* 15). This causes a swelling above the ligature by checking the descent of the sap; and when, after the lapse of one or two years, the swelling has become large, the cut is made immediately below it, and the cutting treated as usual.

Fig. 15.

Fig. 16.

One-bud Cutting (*fig.* 16) is often employed for raising Grape Vines, Mulberries, Hollyhocks, &c., and is called "Raising from an eye." In the Vine and Mulberry, a shoot of the previous year is cut into lengths of about two inches with a bud in the centre; but in the Hollyhock it is usual to split these one-bud lengths, and to extract the pith. The following are the directions given by Mr. Roberts (*Cottage Gardener*, i. 173). He says, in June or early in July (as the season best suits) cut a branch off the plant or plants selected into as many pieces as there are eyes, or shoots, allowing a space of two inches on each side of the eye. Cut them into such lengths, and slit them down the middle, removing all the pith from the inside; put them immediately into some soil or earth in a shady place (say the north side of your garden) about an inch deep, keeping the eye above the earth; water and cover with a hand-glass, and if hot weather, water well over the glass, but do not disturb it. In six weeks there will be nice young plants, which should be planted out early in November in such places as required. They will blossom freely in the June following.

Some plants may be successfully propagated by means of the leaves; and among those whose numbers are thus most commonly increased are the Cacti, Gesneræ, Gloxiniæ, and other fleshy-leaved plants. A few years since, the suggestion was revived that the majority of plants may be thus propagated—a suggestion first made by Agricola at the commencement of the last century. He states that M. Mandirola had raised a Lemon tree in this mode; and then concludes, rather too rashly, "that all exotic leaves may at any time be converted into trees." Since that was written, in 1721, it is certain that plants have been raised from leaves that previously had been considered totally incapable of such extension. Thus M. Neumann succeeded with the *Theophrasta latifolia;* and, going a step further, he even bisected a leaf, and raised a leaf from each half. Mr. Knight has also recorded (in the "Horticultural Transactions" of 1822) that leaves of the Peppermint (*Mentha piperita*), without any portion of the stem upon which they had grown, lived for more than twelve months, increased in size, nearly assumed the character of evergreen trees, and emitted a mass of roots.

In 1839 M. Neumann, of the Paris Garden, seeing the *Theophrasta latifolia* (*Clavija ornata*, D. Don) growing so well from cuttings of leaves, conceived the idea of cutting several of them in two, and treating them in the same manner as entire leaves. Accordingly, he cut a leaf in two, and planted both parts in the same pot, treating them exactly alike. In about three months the lower half of the leaf (*fig.* 17) had made roots, but the upper

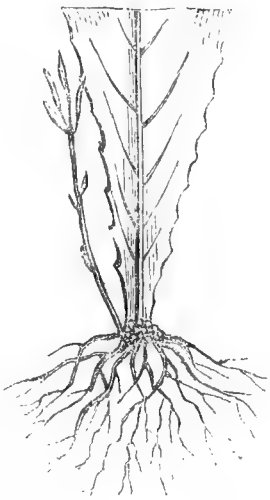


Fig. 17.—The lower half of the leaf of Theophrasta rooted and sending up a shoot.

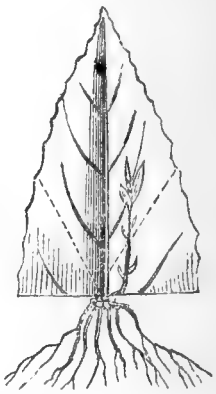


Fig. 18.—The upper half of Theophrasta rooted and sending up a shoot.

half had none; though, some time afterwards, when it became necessary to separate the cuttings, M. Neumann found that the upper part of the leaf had also made roots (*fig.* 18), but that these roots were much shorter than those of the lower half. The rooting of the two halves of a leaf of the Theophrasta, so hard and dry as every one knows these leaves to be, appearing to him an interesting circumstance, he continued to pay attention to them for six months. He wished to ascertain if they would produce buds as in other cases; for he was in hopes they would, as he remarked that the roots increased in the pot. At last in the seventh month, for the first time, he saw at the extremity of his two half-leaves, buds appearing, as well formed as those proceeding from the base of the petiole of an entire leaf. In June, 1840, these two cuttings had become beautiful and healthy plants, which it was impossible to distinguish from others produced from entire leaves.

We see from this experiment that it requires double the time to produce a bud from the upper part of the leaf that it requires for the lower half to produce one; and that in propagation by leaves, it is not always necessary to take the heel, or lower end of the petiole, with the leaf, which sometimes injures and deforms the shoots. M. Neumann's experiment proves further, that wherever cambium can be formed, there are at the same time a number of utricules, or germs of the buds formed, from which a new plant will be developed when the parent is placed in favourable circumstances. From this circumstance, in short, we may conclude that all the veins may serve for the reproduction of plants. The dots in *fig.* 18 show the parts of the upper half-leaf which were cut off to allow of its being put into a small pot; and this proves that it is only the middle rib (or prolongation of the petiole), which is required for reproduction. Half-leaves of various plants have been rooted in charcoal in Germany.

The plants usually raised by leaves in British gardens are comparatively few, and chiefly Gesneras, Gloxinias; bulb-bearing leaves, such as Bryophyllum; some succulents, such as Sempervivum, and few others. Leaves of the Orange, the Hoya, the Aucuba, the Camellia, *Ficus elasticus*, the Clianthus, the common Laurel, and a few more, are occasionally rooted, but more as matter for curiosity than for the purpose of increase.

Propagation by the leaves of bulbs has been successfully effected

by the Hon. and Rev. W. Herbert, who first tried it, in 1809, by setting a cutting of a leaf of a Cape Ornithogalum. "The leaf was cut off just below the surface of the earth in an early stage of its growth, before the flower-stalk had begun to rise; and it was set in the earth, near the edge of the pot in which the mother plant was growing, and so left to its fate. The leaf continued quite fresh, and on examination (while the bulb was flowering) a number of young bulbs and radical fibres were found adhering to it. They appeared to have been formed by the return of the sap which had nourished the leaf. Thereupon two or three more leaves were taken off and placed in like situations; but they turned yellow, and died without producing any bulbs. It appeared to me then, and it was confirmed by subsequent experience, that in order to obtain a satisfactory result the leaf must be taken off while the plant is advancing in its growth. I found it easy thus to multiply some bulbs that did not willingly produce offsets. I afterwards tried, without cutting the leaf off, to make an oblique incision in it under ground, and in some cases just above ground—attempting, in fact, to raise bulbs by layering the leaf. This attempt was also successful, and some young bulbs were formed on the edge of the cut above ground as well as below. I tried cuttings of the stem of some species of Lilium, and obtained bulbs at the axil of the leaf, as well as from the scales of the bulb; and that practice has been since much resorted to by gardeners, though I believe it originated with me. I raised a great number of bulbs of the little plant which has been successively called Massonia, Scilla, and *Hyacinthus corymbosus*, by setting a pot full of its leaves, and placing a bell-glass over them for a short time. A bulb was obtained with equal facility from a leaf of a rare species of Eucomis; and experiments with the leaves of Lachenalias were equally successful. I apprehend that all liliaceous bulbs may be thus propagated; but the more fleshy the leaf, the more easily the object will be attained."—(*Gard. Chron.* for 1841, page 381.)

Leaves and parts of leaves of the following plants were rooted in charcoal by M. Lucas, of Munich, in 1839:—Half-leaves of Piereskia, and leaves of *Euphorbia fastuosa*, in a short time filled their pots so full of roots that they were obliged to be repotted.

In from eight to fourteen days leaves of *Cecropia palmata*, *Oxalis mandioccana*, *O. purpurea*, *Euphorbia fastuosa*, *Cyclamen Indicum*, *Lophospermum scandens*, *Martynia craniolaria*, *Begonia monoptera*, *B. bulbifera*, *Ipomœa superba*, *Mesembryanthemum tigrinum*, *Gesnera latifolia*, *G. atro-sanguinea*, *Sinningia guttata*, *Piper piereskiæfolium*, all sorts of Gloxinia, even calices and mere flower-stems, pieces of leaves of *Convolvulus Batatas*, *Peireskia grandifolia*, *Polianthes Mexicana*, and warts of the large-warted Mammillaria.

In three weeks the tops of the leaves of *Agave Americana fol. var.*, leaves of *Jacaranda Brasiliensis*, bundles of leaves of *Pinus excelsa*, leaves of *Mimosa Houstoni*, and *Cyperus vaginatus*.

In five weeks, whole and half-cut leaf-stalks of *Encephalatos Caffer* and *Zamia integrifolia* produced a number of roots from the surface of the cuts.

Many leaves have not yet made roots, but for a considerable time have formed callosities—such as *Laurus nitida*, *Bignonia Telfairiæ*, *Carolinea princeps*, Ardisiæ, Gardeniæ, *Adansonia digitata*, Dracæna, &c. As experiments that did not succeed, we may mention portions of the leaves of Amaryllis and Crinum, of Ferns, of tropical Orchideæ, of Dasylirion, Tillandsia, Pandanus, *Phormium tenax*, of tropical tuberous-rooted Aroideæ, old leaves of the Agave, and some others which, partly through rotting by wet, or other mischances, were prevented from growing.

Leaves with the buds in the axils root freely in the case of many species. The buds and leaves are cut out with a small portion of the bark and alburnum to each, and planted in sandy loam, so deep as just to cover the bud; the soil being pressed firmly against it, and the back of the leaf resting on the surface of the soil. Covered with a bell-glass and placed on heat, in a short time the buds break through the surface of the soil, and elongate into shoots. The late Mr. Knight tried this mode with double Camellias, Magnolias, Metrosideros, Acacias, Neriums, Rhododendrons, and many others, some of which rooted and made shoots the same season, and others not till the following spring.—(*Loudon.*)

That leaves may be made almost universally to emit roots there appears little reason to doubt; for the same great physiologist had long before proved that the roots of trees are generated from vessels passing from the leaves through the bark; and that they never, in any instance, spring from the alburnum. But the question arises, Will they produce buds? and, at present, the answer derived from practice is in the negative. Orange leaves, Rose leaves, leaves of *Statice arborea*, have been made to root abundantly; but, like blind Cabbage-plants, they obstinately refused to produce buds. Dr. Lindley thinks that a more abundant supply of richer food and exposure to a greater intensity of light would have removed this deficiency; and we see every reason for concurring with him; for buds seem to spring from the central vessels of plants, and these vessels are never absent from a leaf. If an abundant supply of food were given to a well-rooted leaf, and it were cut down close to the callus from whence the roots are emitted, we think buds would be produced, for the very roots themselves have the same power.

The soil is an important consideration. The cuttings of Orange trees and others which strike with difficulty if inserted in the middle of the earth of a pot, do so readily if placed in contact with its side. The same effect is produced by the end of the cutting touching an underdrainage of gravel or broken pots. Why is this? and our observations justify us in concluding that it is because in these situations—the side and the open drainage of the pot—the atmospheric air gains a salutary access. A light porous soil, or even sand, which admits air the most readily, is the best for cuttings; and so is a shallow pan rather than a flower-pot, and apparently for the same reason. We have no doubt that numerous perforations in the bottom of the cutting-pan would be found advantageous for cuttings which root shyly.—J. (*To be continued.*)

FIXING AMMONIA IN AND DEODORISING HOUSE SEWAGE.

I HAVE a well in my garden into which the drainage of the house runs. In using it the smell is very strong and disagreeable. Will you inform me of an easy and cheap way of fixing the ammonia? and at the same time will you say if fixing the ammonia in any way destroys the manuring power of the drainage? I have a very large tub close to the well into which I could pump it and deodorise it.—S. G.

[There cannot be much water mixed with your house sewage, or it would not smell so offensively. We have the overflow of our rain-water well communicating with the sewage well, and its smell is but trifling. It is absolutely necessary to have the sewage diluted before applying to some plants. To Asparagus-beds, Rhubarb, vacant ground about to be dug, &c., it may be applied undiluted. The best fixer of the ammonia is sulphuric acid (oil of vitriol), and the next best sulphate of iron (green vitriol). About two pounds of the acid, or five pounds of the sulphate to every twenty gallons of undiluted sewage would suffice. Bleaching powder (chloride of lime) would also fix the ammonia and deodorise effectually. About three pounds to twenty gallons would be enough. However, we never fix the ammonia (although it does not diminish the fertilising power of the sewage) nor adopt any application but water to deodorise. In five minutes after the sewage has been applied the earth has entirely deodorised it.]

VEGETABLE PRODUCTS OF NEW ZEALAND.

INDESCRIBABLE is the charm of New Zealand forests for the lovers of Nature. There generations of noble trees are seen decaying, and fresh generations rising up around the moss-covered trunks of fallen patriarchs. The profound silence which reigns in these regions produces a pleasing gloom on the mind, and the scene displays better than the most classic architecture the grandeur of repose. No sound is heard save the falling of trees, or the parrots' shrill screech, as birds which enliven the outskirts of forests are mute in their interior. Around the graves of past generations of trees the air is hushed into stillness, while the tops of the living generation are agitated with gales and breezes. At Christmas the Pohutukaua (*Metrosideros*) is covered with scarlet flowers, and is then the most gaudy of forest trees; and the Rimu (*Dacridium cupressinum*) possesses a melancholy beauty and an indescribable grandeur. Few of the Pines recall to the settler's eyes the same trees in England, and singular to relate, unlike their congeners, the majority of them grow intermixed with other trees. The celebrated and beautiful Kauri (*Dammara australis*) is the only Pine bearing a cone, and the male and female cones are found on the same tree.

Travellers talk of the solitude of the forests, but there is society in trees which men miss on immense plains; it is on the prairie alone that the solitary traveller has a sensation of loneliness, feels that he is in the world and does not belong to it, that he is a solitary wanderer on a vast oceanless desert without landmarks.

On the coast plains in the North Island, Ferns and Flax plants supply the place of Grasses. The sight of an immense district covered with short Fern fills the mind with an idea of sterility; while the long Grass covering the Middle Island plains and parts of the interior of the North Island, looks like hay.

There are few flowering plants in New Zealand. Great Britain contains upwards of 1400, and New Zealand possesses scarcely 750. To compensate for this want, some of New Zealand's flowers are very beautiful; and the starry Clematis creeping from tree to tree, and hanging in festoons from the branches, makes, in certain seasons, her wild forests "blossom like the Rose."

Travellers in one part of New Zealand become only partially acquainted with the whole Flora. The magnificent Kauri Pine is limited in its growth to the country surrounding, and to the north of Auckland, although a few stray trees are found near Kawhia, and pieces of Kauri gum have been dug out of the earth in the Middle Island. Formerly Kauri forests covered the land in the neighbourhood of Auckland, and no reasonable explanation has been given why new generations of trees have not risen up to supply their places. The Puriri (*Vitex littoralis*), and the Pohutukaua grow best in the warm north, while the Rimu, Totara (*Podocarpus Totara*), Matai (*Podocarpus spicata*), Mairi (*Podocarpus sp.*), and Rata (*Metrosideros robusta*), flourish in the southern parts of the colony. The Pohutukaua is rarely seen away from the sea coast, or the margins of lakes which were, perhaps, formerly once on the sea coast. One Palm tree (*Areca sapida*), grows in New Zealand, the most southern representative of the order.

In the Kew Gardens are to be seen several New Zealand plants, carefully tended. Dr. Traill relates, that a New Zealander laughed contemptuously on seeing a dwarfed Flax plant in a flower-pot at Liverpool; and New Zealand settlers, on visiting Kew Gardens, feel that the New Zealand plants vegetating there, although beautiful, exhibit to the untravelled but a faint semblance of the beauty and grandeur of the same plants as they grow in their luxuriant native climate at the antipodes.

From the Flora of the country, the aborigines formerly supplied many of their wants. Fern root furnished them with much food; twelve kinds of fungi, almost all the seaweeds, and many forest fruits were occasionally eaten, while epicures gloated over the tender shoots of the solitary Palm. From the poisonous Tutu berries (*Coriaria sarmentosa*), a grateful and not intoxicating drink was expressed; from six plants a dark dye was extracted, and others were celebrated for medicinal virtues. Out of the large trunks of the Totara and Kauri Pines canoes were scooped, and the tough Ti tree furnished paddles and spears. The Flax plant was to the New Zealanders what the Cocoa-nut tree is to the Hindoos; it was used for building and thatching huts, for sails, nets, fishing-tackle, plates, ropes, baskets, medicine, and for tying up anything requiring to be kept together. From the Flax flowers a honey-drink was extracted, and from the roots of the leaves an edible gum; sandals were made out of Flax by the natives living in the Middle Island; and Flax differently prepared, furnished various mats and articles of clothing, some being as coarse as straw mats, while others rivalled the shawls of Cashmere in softness.

Already settlers draw from the Flora of New Zealand several valuable articles. The Kauri and Totara Pines in size excel, and in durability equal, Baltic Pine for houses and ship-building. One Totara tree, near Akaroa, measured thirty-seven feet in circumference. Kauri trees are used for ships' masts, being often ninety feet long, without a branch, and the large Kauri trees have often a girth of forty feet. There are several admirable woods for fencing, and barks suitable for tanning. The Pauriri, which belongs to the same botanical order as the Teak, rivals English Oak in hardness, grows twenty feet without a branch, and has a girth of twenty feet. Valuable and beautiful furniture planks are sawn from the Rimu, Kakikatea, or White Pine (*Dacrydium excelsum*), Matai, Mairi, and Manuka (*Leptospermum scoparium*). At the Great Exhibition of 1851, Tao Nui, a New Zealander, was awarded a prize for specimens of useful woods obtained from his native land. Cook obtained for his crew several useful articles, and Sir Joseph Banks discovered in the forest the finest indigenous fruit, the Kickie (*Freycinetia Banksii*).

English settlers find native grass fattens flocks and herds, and London merchants have realised £80 a ton for Kauri gum. This curious substance has no commercial value when fresh, and, like gum copal, it is found buried in the earth on the site of ancient forests. Fresh gum, only found in modern Kauri forests, has a milky colour, and, like amber, turns yellow and transparent with age. Some obscurity hangs over the use Kauri gum is put to in the commercial world: in England it is said to be used for glazing calico, candles, and paper; and, in the United States, as a substitute for gum copal in varnish.—(*Thomson's Story of New Zealand.*)

INFLUENCE OF THE MOON ON THE WEATHER.

In reply to your correspondent "Este," the most common rules are the celebrated tables of the late Dr. Kirwan, which are printed with many of the pocket-books and annuals.

Having myself kept a journal of the weather for about fifty-four years, I am one of those who believe that the moon has influence over the weather. The changes of the moon in India, called "monsoons," bring rain, &c., to the very day. In our insular climate the changes are, of course, much less perceptible.

Mons. Duhamel and Mons. Tualdo, were both scientific observers of the weather, and most people think that they were right, although opposed by the astronomers Sir William Herschell and Sir J. Lubbock.

There was no similarity between the spring of 1841 and 1860, as that of 1841 was much earlier; and between 1840 and 1859 there was less, for the season of 1840 was a late one and cool; whereas 1859 was the finest and hottest summer for the last thirty-five years, and the spring of 1859 was the earliest for the last sixty years.

Your correspondent says nothing about the influence of comets increasing the heat, which has been quite apparent during the present century. Eclipses also seem to have an influence.

A French gentleman has lately published notes on the weather on certains days of the moon's age; but even if this be correct as to the south of France, it is not at all likely to act in the same manner in the climate of Great Britain.

Mr. Whistlecraft, of Thwaite, Suffolk, has published the best observations I have ever read on the climate of England, and his statistics are admirable. An epitome of these will be found in his "Weather Almanac" for 1859 and 1860, to which I refer your correspondent "Este." I believe the almanac for 1860 is out of print.—H. W. Newman, *Hillside, Cheltenham.*

GARDENING NEAR NICE.

In the neighbourhood of Nice Signor Bonaventura, whose surname was certainly a superfluity, since nobody ever addressed him by it, explained to me sundry matters connected with the culture of the Lemon trees, which constituted the principal revenue of the estate. It is certainly a graceful harvest, gathered every two months all the year round; the 500 trees in the garden having yielded upwards of 100,000 Lemons in less than ten months, and 20,000 or 30,000 more being looked for before Christmas. These are sold at from 40 to 50 francs per 1000—a franc is equal to 10*d.*—to traders, who either send them in cargos to England and the United States, or else retail them at large profits to fruit dealers for home consumption. The Lemon tree requires great care, and is manured every three years with woollen rags—a process likewise applied in many parts of the Riviera to the Olives, which certainly attain to a size and thickness of foliage not seen elsewhere. They showed me some Lemon trees which were being prepared for the reception of the rags. A circular trench, about a foot deep and two feet wide, is dug round the trunk, and in this the rags, mostly procured in bales from Naples, are laid; a curious assemblage of shreds of cloth gaiters, sleeves of jackets, bits of blankets, horserugs, and so forth—the whole conveying an uncomfortable idea of a lazzarone's cast-off clothes. A quantity not exceeding twenty pounds English weight is allotted to each tree, and then the earth, which had been displaced for their reception, is thrown over them, and they are left to ferment and gradually decompose. Some agriculturists throw a layer of common manure over the rags before covering them with earth, but Signor Bonaventura said many experienced persons contended it was unnecessary. Great precaution is requisite to

prevent any blight from settling on the leaves, and in our walks black specks were discovered on the glossy foliage, which it was agreed should be summarily dealt with; accordingly, next morning, four or five peasant girls were hard at work, mounted on ladders, carefully wiping each leaf, and removing the specks, which, if allowed to spread, would have endangered the life of the tree.

As we passed through the woods of Olives, Signor Bonaventura descanted *con amore* upon their value and utility; and classing them above my favourite Lemon trees, which can be cultivated only in sheltered situations, assured me that they were the great staple of the Riviera, although a good crop is only realised every second year—the produce of the intervening one being very inconsiderable. In the good years, the yield of each tree is estimated, according to its size, at from five to eleven francs clear profit. The trees are carefully numbered on each estate, and from 1000 to 1200 constitute a very fair *proprietà*. When the Olives turn black and begin to fall, sheets are laid beneath the branches, which are gently shaken to detach the fruit; whatever is thus obtained, is carefully spread on the floor of some rooms set apart for the purpose, and day by day, as the remaining Olives successively ripen, they are shaken down and added to the store, until sufficient is collected to be sent to the mill, where it is pressed, and the oil flows out clear and sparkling. After this first process of pressing the fruit, there is a second one of crushing or grinding it, by which the oil of an inferior quality, requiring some time to settle, is obtained; lastly, water is poured on the mass of stones and pulp, and the oil that rises to the surface is carefully skimmed, being the perquisite of the proprietor of the mill, who receives no other remuneration for his share in the transaction. The produce of the Fig trees is another, though less lucrative, source of revenue; great quantities are dried in the sun, and afterwards sold, not only for the supply of the country itself, but for the French market, where the Figs of Ventimiglia, Signor Bonaventura declared, were as much prized as those of Smyrna. He showed me large supplies in course of preparation, laid on long frameworks of reed lightly interwoven, which as soon as the sun rose were carried out, and remained all day exposed on the low parapet which divided the *jardin potager* from the beach. No guard was ever kept over them, and no fear seemed to be entertained of their being stolen. Indeed, the honesty of the peasantry and fishermen is marvellous, for in this same kitchen garden—a strip of sandy soil stolen from the sea-shore—Green Peas, Tomatoes, Cucumbers, Melons, and a variety of vegetables, were grown in profusion; and, nevertheless, unprotected as it was, being without the precincts of the iron gate at the back of the house, which was closed for form's sake every night, nothing was ever missed—not a single fruit or vegetable misappropriated.—(*The Englishwoman in Italy.*)

GARDENERS' BENEVOLENT INSTITUTION.

The anniversary dinner of the Gardeners' Benevolent Institution, was held at the London Tavern, Bishopsgate Street, on the evening of Wednesday, the 27th ult., when the chair was occupied by the Earl of Caernarvon. There were present among the company—Mr. Masterman, Mr. Mildred, Mr. Gurney, Sir Charles Fox, Mr. Robert Gibson, Mr. Robert Wrench, Mr. C. B. Warner, Mr. J. E. C. Koch, Lieut.-Colonel Hicks, and many other gentlemen, patrons of horticulture. Upwards of one hundred sat down to dinner.

The room was tastefully decorated. Behind the Chairman there was a bank of beautiful Geraniums, supplied by Mr. Turner, of Slough; in various parts of the room large showy plants from various nurserymen were arranged in groups, or, as single specimens, in those positions where their fine effects could be most fully brought out; while the tables were ornamented with a profusion of cut flowers in epergnes and baskets, and hanging-baskets of Ferns depended from the chandeliers. The whole arrangements were better than we ever recollect to have seen at any previous dinner of this Institution; and not the least prominent feature was an excellent dessert, of which a scarcity was always too apparent on former occasions. We have always thought that the gardeners of England have it in their power to render their annual festivals the most attractive of those of all national charities, by contributions of garden productions, and, we regret to say, that it had become almost a proverb, that they were the baldest and most unattractive of all. There are some who deprecate these public dinners, and who argue that it would be better to apply the money spent in this kind of enjoyment to the purposes of the charity. We should be of the same opinion too, provided it were from the funds of the charity that these entertainments were paid for; but so long as a number of benevolent gentlemen are willing to sit down together and pay for their own dinner, and afterwards subscribe among themselves a donation of upwards of £300 to the charity, as was the case on this occasion, we really do not see what reason there is for anybody complaining. It is quite certain that if those gentlemen had not sat down together on Wednesday last, the Gardeners' Benevolent Institution would have been £300 poorer to-day than it is. If the gardeners of England who have it in their power would come forward liberally, and render their annual festivals attractive, by contributions of flowers and fruit, there is no reason why the attendance should not be double what it hitherto has been, and the subscription list amount to £600 instead of £300. A bunch or two of Grapes from some, Pine Apples from others, or a few Peaches, Nectarines, Melons, and Strawberries, from those who can spare them, would go to make up a dessert worthy of the gardener's charity dinner; but where this is left to be provided out of the pockets of the Stewards, as it was on this occasion, we think it is saddling those gentlemen with a tax, in addition to performing the duties of the office, which they ought not to be called upon to bear. There were, however, a few commendable exceptions on Wednesday last, one or two gardeners in the neighbourhood of London, having, unsolicited, sent some excellent Pines and Grapes.

After dinner the noble Chairman gave the usual patriotic toasts—"The health of Her Majesty, the Prince Consort, Prince of Wales, and the rest of the Royal Family," and the "Army and Navy."

Sir Charles Fox proposed the health of the Earl of Carlisle, President of the Institution, and took that opportunity of passing a well-merited eulogium on the character of that estimable nobleman, which was cordially responded to. He said—"His lordship was one of those good men who studied more the happiness of others than of himself. He believed that if ever there was a good man in the world it was the Earl of Carlisle; and if ever there was a happy man it was he, for, every happiness he conferred on others was a sort of reflecting surface, casting back its joys upon himself."

The noble Chairman then proposed "Success to the Gardeners' Royal Benevolent Institution." His lordship said—"Two old lines are present to my mind, which, I dare say, are familiar to you, and which seem to apply to myself at this moment—

> 'So comes the reckoning when the banquet's o'er;
> The dreaded reckoning, and men smile no more!'

I really feel as though the time of reckoning had come with me, for I have a toast to propose which places me somewhat in a difficulty lest I should not be able to find language in which to do justice to it. It was but a short time ago that I came across an account of a florists' banquet a century and a half ago at Bethnal Green, in the days of the first George. The various gardeners who attended brought also such flowers as they had been sucessful in cultivating, and no doubt the accounts were correct which said it was a very brilliant affair; but I could not help thinking that if those who then took part in the display could have looked upon the scene upon which I am now permitted to gaze, and could have beheld the magnificent galaxy of flowers which graces the end of the room behind me, they could not but have considered it as a monument of horticultural skill and industry, order, and arrangement. Could any of those who were so engaged in those days have seen the endless array of flowers and fruit which I have the opportunity of enjoying, they would have admitted that, whatever might be the shortcomings of these days in other respects, at any rate the study of horticulture had made rapid strides indeed in this country. With what venerable and historical associations is not horticulture in its study in this country connected? Who could forget that it was Almighty God who planted the first garden, and that it was Cain who built the first city? You will remember how in ancient days—in the earliest times—there were gardens described as of great beauty and extent—such as that of Ahasuerus, with its splendid Lilies and Pomegranates, and of the gardens of the Kings of Judah, the fragrance of whose flowers and spices was blown about by every wind. The great garden of Babylon again, existed as long ago as 3000 years. And then there was that garden, sacred and consecrated, and which would ever live in the mind of every soul in Christendom, to which the Saviour himself gave the name.

So, as time rolled on, we find in every age and amongst almost every people, gardens were cultivated. Every nation that boasted civilisation, elegance, refinement, and taste, had shown ever a love for gardens and for gardening. Let us look at the Greek nation, for instance, with its garden of Adonis—still a household word, even in the 19th century. But the Greek notion was not our notion of gardening; for there the Violet and the Lily grew beside the Onion and the Leek. But we might gather a useful lesson even from that—how it might be treated allegorically that good and evil were often found together in this world, and how the perfume of the good almost invariably overcame the odour of the bad. It teaches us another practical lesson. I, for one, protest against the practice of separating the kitchen garden from the flower garden, and placing it at a distance, as though it had no connection with it. My notion is that they should work together—hand in hand with each other, as it were—the one affording beauty and the other usefulness. It is the truest poetry of life when beauty and usefulness are mingled in equal proportions. Now let us glance at what the Roman gardens were. We can even see them now, with their flower-beds edged with Box, their terraces, their sloping banks trailed over with evergreens and creepers, their hedges cut into all forms, shapes, and devices, in many an English gentleman's garden. Perhaps, then, we have caught some of the spirit of those to whose notions of gardening our own bare so strong a resemblance. Looking now to our own times, there is not a year passes over but every country in the world is searched and ransacked in order that new plants and flowers and seeds might be brought to this country. The warm shores of the Mediterranean send us their productions. Our colonies are laid under loyal contribution to supply us. The Indies and the Himalayas—thanks, by the way, to the indefatigable skill and perseverance of Sir W. Hooker—send many a rare and valuable specimen. California, China, Japan, and innumerable other countries have sent us their rich treasures, and thus it is that we are able to congratulate ourselves on the advanced state of our gardening in these days. We ought, then, ever to feel grateful for the science, the skill, the enterprise, and the knowledge which have all been brought to bear in order to produce these splendid effects, and to arrive at the present high position which horticulture enjoys. To the gardeners of England we are very much indebted for the position that horticulture now occupies in this country. The life of a gardener is one of pleasure and enjoyment; but the gardener is entirely dependent on health for livelihood: and although his pursuits are of a healthy description, he has to contend with circumstances as arbitrary as the Scandinavian wizard, who at one time heaped upon his victim the burning heat of a great furnace, and then enveloped him in a mantle of ice. From these circumstances they are exposed to many personal privations, and this Institution has been formed to relieve them from a position to which old age and ill health have brought them. I have now much pleasure in proposing to you "Success to the Gardeners' Benevolent Institution," whose anniversary we are met to celebrate, and through whose aid pensions of £16 to men, and £12 to women are distributed. There are now forty-nine on the list—forty-one men and eight women. The present might truly be called an age of Societies; and this particular one deserves a distinguished place amongst them, for there is not one more valuable or which does more good according to its means."

Mr. J. E. C. Koch proposed the health of the noble Chairman; and his Lordship in reply concluded by proposing the health of Mr. Robert Wrench, the Treasurer of the Institution, to which Mr. Wrench replied.

His Lordship then proposed the health of Mr. Cutler, the Secretary; who, in replying to the toast, stated that the subscription papers showed an amount collected in the room of upwards of £300, which far exceeded his most sanguine expectations.

The noble Chairman then proposed "The Horticultural and Botanical Societies of London," coupling with the toast the name of Mr. Spencer, so well known as being associated, not only with these Societies, but with the noble and venerable Lord Lansdowne, who had done so much for the advancement of the science of horticulture.

Mr. Spencer replied by saying that he felt highly flattered by having his name mentioned in such an assembly as this in conjunction with the Horticultural and Botanical Societies, and especially in conjunction with the name of his noble employer, the Marquis of Lansdowne. He was proud to say that he had now served that esteemed nobleman for a quarter of a century, and they were better friends to-day than they were when he (Mr. Spencer) entered his Lordship's service. He was not now so intimately connected with the Horticultural Society as some gentlemen present who were now on the Council of the Society, and therefore did not know what their plans were; but he would say, that from the altered circumstances in which the Society was now placed, it was bound to do a greater amount of good than it had ever done. Gardening is the pioneer of Agriculture; and when he looked to the colonies of this great empire, and saw the field there open for improvement and enterprise, he thought the Horticultural Society had it in its power to benefit our colonial possessions by keeping up the standard of horticulture in this country, so that gardeners going out to those distant parts might carry with them all the experience and skill with which a thorough training alone can furnish them.

His Lordship, before vacating the chair, proposed the health of Mr. J. E. C. Koch, who then took his Lordship's place, and proposed "Prosperity to the Nursery and Seed Trades;" which was responded to by Mr. Turner, of Slough, and Mr. Bolton, of the firm of Noble, Cooper, & Bolton. After "The Health of the Ladies," the Meeting separated.

HORTICULTURAL SOCIETY'S FLORAL COMMITTEE.

A meeting of this Committee was held at the rooms, St. Martin's Place, Trafalgar Square, W.C., on Thursday last; Rev. Joshua Dix in the chair.

Mr. Turner, of Slough, sent a collection of eleven varieties of new seedling Pelargoniums, the finest of which were *Perdita* (Foster) and *Arabella Goddard*. The former is a beautiful thing, of dwarf bushy habit of growth, throwing the flowers well up from the foliage. The truss is good, and the flowers large; the upper petals entirely covered with velvety-black purple, edged with deep rose, the lower ones deep rose veined and mottled with darker colour; throat of pure white. Received a First-class Certificate. *Arabella Goddard* is a fancy variety, a profuse bloomer, with pale lilac flowers. This received a First-class Certificate.

Mr. George Smith, of Hornsey Road, exhibited a seedling Verbena *Fairest of the Fair*. It has a fine compact truss, pure white flowers with purplish-rosy eye. Received a Label of Commendation. Also, *Calceolaria Canariensis*, a bedding variety producing a profusion of rich yellow flowers. This also received a Label of Commendation.

Messrs. Veitch & Son, of Chelsea, sent a variegated Gardenia, which appears to be a variety of *Gardenia radicans*. It has the same compact bushy habit of the species, and numerous double white flowers; but the leaves, which are long and narrow, are beautifully variegated with white margins. Whether in bloom or out of bloom this is a beautiful plant.

Messrs. Milne & Co., of Vauxhall, sent a collection of eight seedling Gloxinias, all of which were upright-flowering varieties, one of which, named *Gem*, was requested to be shown again at a subsequent Meeting.

Messrs. Stansfield & Son, of Todmorden, sent a fine plant of *Athyrium filix-fœmina*, var. *plumosa*, a beautiful variety of Fern, which received a First-class Certificate.

Azalea Magnet, from Mr. W. Barnes, of Camberwell, received a Label of Commendation, as a decorative plant. It is a dwarf grower, a late and very profuse bloomer, the flowers being large and in the way of *Stanleyana*. The plant exhibited, which was not above a foot high, was one mass of bloom.

Messrs. Carter & Co., of Holborn, sent two new Annuals, *Gilia achilleæfolia alba pura* and *Linaria macroura splendens*. The former is a very pure white variety, and received a Label of Commendation; the latter is very dark purple.

Mr. Standish, of Bagshot, exhibited a large plant of the beautiful *Dracæna indivisa*, which has a fine bronzy foliage, and a rich orange midrib. To this a First-class Certificate was awarded.

A seedling Pink, *Mrs. Turner* (Maclean's), was exhibited by Mr. Turner, of Slough, and received a First-class Certificate. It is heavily laced with deep purple.

TO CORRESPONDENTS.

Rose Petals Stunted (*M. H.*).—The cause of your Rose petals being so dwarf as to form no more than a ring within the calyx, probably is the coldness of the season, as well as poverty of soil. We have seen a Rose

tree this summer with all its blooms green-centred and the petals dwarfed as in your specimens. This Rose was more exposed, and growing on a poorer soil than others within three yards of it. These are trained against a wall facing the S.E., and on a richer soil. They have not one flower green-centred.

Unfruitful Peach Trees (*Idem*).—Gishurst Compound would not injure the blossoms unless these were just opening when it was applied. When Peaches do not set well in a Peach-house it often is occasioned by not admitting air freely at the time. We cannot give an opinion, however, without more knowledge of the circumstances.

Pruning Rhododendrons and Azaleas (*B. C.*).—The bloom for next year will come on this year's shoots, and on these only. You must, therefore, be careful not to remove too many of them, lest you spoil the bloom of next season. Wait till the plants have made their growth and set their buds before you attempt to cut them into shape.

Grass on a Lawn (*Walton Vicarage*).—It is not a grass, but a weed, *Sagina procumbens*. It is like, but will not do as a substitute for, *Spergula pilifera*.

Vines not Vigorous—Fuchsia Flowers Cracking—Piping Required (—).—Your Vine leaves have traces of mildew, and also of the webs of the red spider. If you resolved on keeping the Vines—and as by this time they must have rooted—we would cut them down close to where they enter the house, and would expect a fresh shoot to do better. As you do not think of the money-value, our advice, however, would be to remove the Vines altogether, and even take away all the part of the border into which the roots have penetrated, and get a couple of fresh ones. Any of the tradesmen whose names appear in these pages, and very likely the nurseryman from whom you had the others, could supply you with strong young Vines in pots. We would prefer them not to be older than last season's growth. These, if kept and grown in houses, will be several feet in length, and will not be far behind the others by the end of the season, as the weather has been so cold, proceed thus. Get two or three barrow-loads of nice light soil, consisting of loam, rotten horsedung, and lime rubbish, nicely heated and aërated. Keep the plants a few days inside the house after you receive them to let them get over the fatigue of the journey; then open the place for transplanting. Get the top nicely secured and fastened, and then carefully extricate the roots from the ball, and spread them out evenly, placing them on and among the warm soil, and sprinkle, but not deluge, them with warm water—say at 90°. Cover up with the rest of the soil, and use a little more warm water; and, to keep the heat in, cover the border with a spare sash, or a mat, or straw hurdle, removing it when the sun shines bright, and replace in the afternoons to keep the heat in. Sprinkle the top inside, and shade for a few days from bright sun, and the Vines will most likely grow as fast as you would desire. This will be the most satisfactory plan to follow. Your mishap might take place, and yet nobody be to blame. Most likely the tradesman was confident he sent you a first-rate article. Some people are anxious to get old Vines in pots to plant: we cannot say that we approve of them. An old Vine taken up carefully out of a border is a different thing. If they could be had at the right time we would prefer them to young ones. Vines seldom improve if kept more than two years in selling-pots. Your Fuchsia plant has been grown quickly enough, and the weather has been destitute of sun. When your pot is fuller of roots, and you give them a little manure water then, and there is more sun, your blooms will open all right enough. The growth is not settled enough yet. The same facts will apply to *Fuchsia fulgens*. Many other things have suffered this season from similar causes. To secure 60° in winter in a house 21 feet by 10 feet in all weathers, you will require from 110 feet to 120 feet of four-inch pipe at least.

Budding Roses, &c. (*D. B.*).—At page 155, in our last number but one, you will see that the middle of July is the best time, and how to perform the operation; and in page 154 that now is the time for making Rose cuttings, and how to proceed. Seedling Strawberries raised this summer will bear fruit in 1862.

Name of Insect (*I. F., Manchester*).—The insect on the back of your Rose leaves is the *thrips*. If grown under glass, the Rose trees have been kept in air too dry. Dust under the leaves with Scotch snuff.

Apple-destroying Insect (*J.*).—The small beetle with brown wing-cases, and greenish-blue metallic thorax is the *Anomala horticola*. It has been very destructive of the Apples in some gardens near Winchester this summer. The beetles came in myriads from the downs, and not only ate the young Apples, but also fed upon the leaves, but more sparingly. They did not touch the Pears growing in the same gardens. These beetles have been very numerous at Oxford and elsewhere. Their habits are those of the common cockchafer.

Pyrus Japonica (*I. E. Cross*).—The young shoots being unhealthy and leaves yellow show there is something wrong at the roots. In autumn uncover them, throw out all the old soil, and fill in all round them with fresh soil.

Cutting Back unproductive Shoots of Vines (*A Subscriber*).—We should not think it judicious to do so unless under peculiar circumstances and for a particular purpose. Most likely the eye would push and make a weakly shoot which would be all you would gain, or rather lose by the operation. Did we know more of your intentions and circumstances we might say more. We consider September, the latter half of it, the best time to remove Hollies; but we have moved them on to April successfully, and even at midsummer when extra care was used. Did we have many to plant we should like to finish before November if it could be done.

Names of Plants (*S. W. T.*).—It is *Pilea serpyllifolia*. (*Robert*).—The plant you sent is the *Juanulloa parasitica* of Sir W. J. Hooker, in *Bot. Mag.*, *t.* 4118; but which Mr. Miers, who is very learned in the family, thinks different from the original plant of Ruiz and Pavon, and has called it *Juanulloa Hookeriana*. It has also been called *Ulloa parasitica*, and is figured in Paxton's "Magazine of Botany," ix. 3, under the name of *Brugmansia floribunda*. In the nurseries it is sometimes known as *Brugmansia parviflora*. (*C. B. Clough*).—Your plants are *Geranium phœum*, and a luxuriant specimen of *Euphorbia amygdaloides*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

July 19th. Prescot. *Sec.*, Mr. J. Beesley. Entries close July 7.

August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

THE EGG TRADE.

(*Continued from page* 203.)

It may safely be said, that in almost all weathers fowls will lay at a certain age. This does not imply they all do so at the same age. Some breeds are more precocious than others. Thus Brahmas and Cochins lay at from eighteen to twenty weeks, if they have been well kept, and they will continue to do so. Good young pullets of these breeds will lay forty or fifty eggs at the time of year when they are most valuable. Say, for argument's sake, each lays forty, and they make 3*d.* each, produce 10*s.*; the pullet is eight months old, and has cost 8*d.* per month ever since she was hatched—cost, say, in round numbers, 6*s.* The hen may now be sold for 2*s.* 6*d.*, or she may be kept to rear one of the broods that will form the laying stock for the next winter.

It may be, that some may be disposed to think our descriptions visionary, or that we draw on imagination. It is not so. We will endeavour, as we often do, to give the description of that which may be seen in London where fowls are profitably kept, and where, we need scarcely add, the return can be only by eggs. Save at some highly-favoured spots, where the walk of the birds opens on a coach-stand, they have none but bought food, yet their eggs make a good profit for their owner. The fancy is still found at the watering-houses of some cab-stands in good streets. Thus, in Conduit Street, between Bond Street and Regent Street, between St. George's Church and Burlington Gardens, may be seen a walk of fowls. The different Mews are full of them—all live by eggs. During the winter they sell at 3*d.* and often 4*d.* each. The secret of the profit is this: Those who will not sell when the use of a bird is lost for a time are not to look for profit, because they are following a hobby. These London egg-producing birds are doomed the moment they cease to lay. The first sound that indicates broodiness is the sentence of death; and the place will remain vacant till the late autumn, when some pullets will be introduced in order that they may get accustomed to their place before they begin to lay. As soon as it is found really new-laid eggs can be had from these dealers, they are generally bespoken for days to come. It is really a profitable trade. It would, however, cease to be so if fancy were listened to, or misplaced humanity spared their lives. It is the fate of all food-producing animals to be weighed against their own produce, and whenever their consumption would equal or exceed their contribution they are doomed to die. They are not only feeding men, women, and children, with their carcases, but that production of food for others must be the livelihood of their owners. Our egg-producing hens are then subject to this test, and he who is determined to make them profitable thus tries them:—"Two good hens, very good hens indeed, cost 7*s.* two months since. Have laid seventy-five eggs, sold for 25*s.*; cost 3*s.* 6*d.* keep: 14*s.* 6*d.* profit. Wo'n't lay any more at present. Will make 2*s.* 6*d.* a-piece to sell. Better sell them. Increase profit. Wo'n't lay any more at present; when lay again—eggs more plentiful, not worth as much. Sell them now, buy two pullets in October." It is in vain the wife says it is too bad to kill the poor things, and the little daughter stipulates for the tame one. Nothing is more inexorable than money-making. Everything but honesty falls before it. It requires no small firmness on the part of Paterfamilias to deny the loving requests, and to be deaf to the prayers of wife and daughters, when interest says "kill," and they say "spare." The poor man's patience,

too, is often sorely tried; for if there is a pet among the hens, it is generally one that has, by some accident, lost a leg, or has a crossed bill and is unable to pick up food, or carries its tail on one side.

But these hens are killed because the food for them must be bought. The same cause for killing does not exist in a farmyard, because, whether rightfully or wrongly, it is supposed fowls cost nothing to keep in a farmyard, and because there a profit is made of chickens.

It is somewhat difficult to pen a paper that shall meet all cases; but we have shown how at least one class of the many poultry-keepers can do so profitably. All may learn from that, and we have yet to write much on the egg question.

BOUGHT EGGS UNPRODUCTIVE.

Can you or any of your numerous readers assign me the cause of the following disappointment? I bought a sitting of Golden-spangled Hamburgh eggs some time since. I put them under a very careful Cochin hen, and paid them every attention, which resulted in thirteen bad eggs—not rotten ones, but still unfertile. I then sent for another lot from the same party, which he offered me for 2*s*., as I had been unfortunate with the other, and I have had precisely the same result as in the first attempt. I think they have been "dipped," or otherwise tampered with, as the party was unwilling (for a time) to send me the second lot; he wanted to push a pen of fowls on to me instead. What shall I do? I paid him 10*s*. 6*d*. for the thirteen eggs. I think it unfair, after paying a man his own price, to be deceived.—T. S. Brooke.

P.S.—I forgot to say I had a sitting of eggs from Mr. Dixon, of Bradford, at the same time, from which I have eleven fine chickens. One died, and one rotten egg.

[We do not know such a distinction as "bad" eggs not being "rotten." Eggs when sat upon are either addled or form chickens. If there were chickens in any degree formed, the eggs were chilled in some way unknown to you. At all events, you have no remedy against the vendor, unless you can *prove* that he adopted some treatment to prevent the eggs being fertile. No result of experience is more certain than that some eggs travel uninjured whilst others are spoiled by the motion of the carriage on the same railway. Very much depends upon the packing. When eggs are bought, and the vendor takes the necessary care in packing, the purchaser must put up with the risks and accidents during transmission to him. The vendor usually makes a reduction in the price of another sitting, as the vendor did in your case.]

SHEFFIELD POULTRY EXHIBITION.

This was held in the Norfolk Park, Sheffield, on the 29th and 30th ult., and 2nd and 3rd inst. The following is a list of the awards of the Judges:—

Spanish.—First and Second, R. Teebay, Fulwood, near Preston. Third, J. Dixon, Bradford. Fourth, W. W. Brundrit, Runcorn, Cheshire. Highly Commended, Miss M. L. Rake, Brandon Hill, Bristol; W. W. Brundrit, Runcorn, Cheshire; Mrs. J. C. Hall, Surrey House, Sheffield. Commended, T. Robinson, The Gill, Ulverston. *Chickens.*—First and Second, Miss M. L. Rake, Brandon Hill, Bristol. Third, J. R. Rodbard, Wrington, near Bristol. Highly Commended, Mrs. J. C. Hall, Surrey House, Sheffield; J. R. Rodbard, Wrington, near Bristol.

Spanish Hens.—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, Mrs. J. C. Hall, Surrey House, Sheffield. Highly Commended, G. Botham, Wexham Court, Slough; Mrs. J. C. Hall, Surrey House, Sheffield; J. Garlick, Hygeia Street, Everton, Liverpool. Commended, H. Marshall, Cotgrave, near Nottingham.

Spanish Single Cock.—First, S. H. Hyde, Ashton-under-Lyne. Second, R. Teebay, Fulwood, near Preston. Highly Commended, Mrs. J. C. Hall, Surrey House, Sheffield; J. R. Rodbard, Wrington, near Bristol; W. W. Brundrit, Runcorn, Cheshire; E. Brown, St. Philip's Road, Sheffield. Commended, J. Garlick, Hygeia Street, Everton, Liverpool.

Dorking (Coloured).—First, Capt. W. W. Hornby, Knowsley Cottage, Prescot. Second, C. H. Wakefield, Malvern Wells. Third, H. W. B. Berwick, Helmsley, York. Fourth, T. Burgess, jun., Burley Dam, Whitchurch, Salop. Highly Commended, T. Greenhalgh, Everton Road, Chorlton-upon-Medlock, Manchester; J. Bedford, Oughtibridge. *Chickens.*—First, Capt. W. W. Hornby, Knowsley Cottage, Prescot. Second, H. W. B. Berwick, Helmsley, York. Third, G. Chadwin, Tollard Royal, Salisbury.

Dorking (White).—First and Second, S. Burn, East Terrace, Whitby. *Chickens.*—First, J. Robinson, Vale House, near Garstang. No competition for Second prize.

Dorking Hens (of any colour).—First, Capt. W. W. Hornby, Knowsley Cottage, Prescot. Second, H. W. B. Berwick, Helmsley, York. Highly Commended, H. W. B. Berwick; J. F. Newton, Kirby-in-Cleveland, Stokesley. Commended, G. Chadwin, Tollard Royal, Salisbury.

Dorking Single Cock (any colour).—First, Capt. W. W. Hornby, Knowsley Cottage, Prescot. Second, F. Key, Beverley. Commended, T. P. Wood, jun., Chesterfield.

Game (White and Piles).—First, G. Hellewell, Walkley, near Sheffield. Second, G. W. Moss, The Beach, Aigburth, near Liverpool. Third, G. Robinson, Thorpe-Salvin Hall, near Worksop. Highly Commended, Mrs. H. Sharp, Park Road, Bradford. *Chickens.*—First, G. Hellewell, Walkley, near Sheffield. Second, Bullock & Rapson, Leamington.

Game (Black-breasted and other Reds).—First, R. Woods, Osberton, near Worksop, Notts. Second, Capt. Hornby, Knowsley Cottage, Prescot. Third, G. W. Moss, the Beach, Aigburth, near Liverpool. Highly Commended, R. Dodge, West Street, Sheffield; G. W. Moss; J. Fletcher, Stoneclough, near Manchester; T. Robinson, the Gill, Ulverston. *Chickens.*—First, W. Coupe, Langwith, near Mansfield, Notts. Second, R. Swift, Southwell, Notts. Highly Commended, Noble and Ineson, Heckmondwike; J. H. Kilner, Wibsey, near Bradford; E. Archer, Malvern; Mrs. H. Sharp, Park Road, Bradford; F. Hardy, Bowling, Old Lane, Bradford.

Game (Blacks and Brassy-winged, except Greys).—First, G. Hellewell, Walkley, near Sheffield. Second, W. Dawson, Selly Oak, Birmingham. Third, T. Sanderson, 149, Gibraltar Street, Sheffield. Commended, T. Burgess, jun., Burley Dam, Whitchurch, Salop. *Chickens.*—First, W. Eaton, 93, Jericho Street, Sheffield. Second, T. Sanderson, 149, Gibraltar Street, Sheffield.

Game (Duckwing and other Greys and Blues).—First, H. Worrall, West Derby, near Liverpool. Second, T. Robinson, the Gill, Ulverston. Third, G. Robinson, Thorpe-Salvin Hall, near Worksop. Highly Commended, W. J. Cope, Barnsley; W. Dawson, Selly Oak, Birmingham; G. Hellewell, Walkley, near Sheffield. *Chickens.*—First and Second, G. Hellewell, Walkley, near Sheffield.

Game Hens (Any Colour).—First, G. W. Moss, the Beach, Aigburth, near Liverpool. Second, Capt. Hornby, Knowsley Cottage, Prescot. Highly Commended, W. Coupe, Langwith, near Mansfield, Notts; R. Woods, Osberton, near Worksop, Notts; R. Swift, Southwell, Notts; J. Fletcher, Stoneclough, near Manchester; G. Hellewell, Walkley, near Sheffield. Commended, H. Worrall, West Derby, near Liverpool.

Single Cock (of any colour).—First, G. Hellewell, Walkley, near Sheffield. Second, R. Woods, Osberton, near Worksop, Notts. Third, G. W. Moss, the Beach, Aigburth, near Liverpool. Fourth, E. Archer, Malvern. Highly Commended, R. Woods; G. Robinson, Thorpe-Salvin Hall, near Worksop, Notts; Capt. W. W. Hornby, Knowsley Cottage, Prescot; J. Hartop, Barmbro' Hall, Doncaster; M. Turner, 32, Ribblesdale Place, Preston; R. Swift, Southwell, Notts; G. W. Moss; J. Crossland, jun., Wakefield; J. Hindson, Barton House, Everton, near Liverpool; J. Fletcher, Stoneclough, near Manchester; C. E. Broadbent, Holly House, Sheffield.

Malay.—First and Third, A. G. Brooke, Cumberland Street, Woodbridge, Suffolk. Second, C. Ballance, Mount Terrace, Taunton.

Cochin-China (Cinnamon and Buff).—First, W. Harvey, Oxford Street, Upperthorpe. Second, Capt. Hornby, Knowsley Cottage, Prescot. Third, W. Dawson, Hopton Mirfield. Commended, T. Stretch, Marsh Lane, Bootle, Liverpool. *Chickens.*—First, T. Stretch. Second, H. Tomlinson, Balsall Heath Road, Birmingham. Highly Commended, J. K. Fowler, Prebendal Farm, Aylesbury; Mrs. A. Watkin, Freedom Cottage, Walkley. Commended, G. Peters, Birmingham.

Cochin-China (Brown and Partridge-feathered).—First, T. Stretch, Marsh Lane, Bootle, Liverpool. Second, J. Staley, North Collingham, near Newark. Third, W. Cannan, Bradford. Highly Commended, H. James, Walsall. Commended, G. Lamb, Red Hill, Compton, near Wolverhampton. *Chickens.*—First, T. Bridges, Croydon, Surrey. Second, J. K. Fowler, Prebendal Farm, Aylesbury.

Cochin-China (White or Black).—First and Second, R. Chase, Moseley Road, Birmingham. Third, W. Cannan, Bradford. *Chickens.*—First, W. Dawson, Hopton, Mirfield. Second, G. Peters, Birmingham. Highly Commended, G. Peters. Commended, R. Chase.

Cochin-China Single Cock (of any colour).—First, W. Harvey, Oxford Street, Upperthorpe. Second, H. Tomlinson, Balsall Heath Road, Birmingham. Highly Commended, H. James, Walsall.

Brahma Pootra (Light or Dark).—First, W. Harvey, Oxford Street, Upperthorpe. Second and Third, R. Teebay, Fulwood, near Preston. *Chickens.*—First, G. Botham, Wexham Court, Slough. Second, R. Teebay, Fulwood, near Preston. Highly Commended, J. R. Blakiston, Settle.

Brahma Pootra Single Cock.—First, R. Teebay, Fulwood, near Preston. Second, W. Harvey, Oxford Street, Upperthorpe. Commended, W. Harvey, Oxford Street, Upperthorpe.

Hamburghs (Golden-pencilled).—First, W. Froggott, Walkley, near Sheffield. Second, J. Martin, Claines, Worcester. Third, J. Dixon, Bradford. Highly Commended, Messrs. Carter and Valiant, Poulton-le-Flyde, near Preston. Commended, J. Martin, Claines, Worcester. *Chickens.*—First and Third, Messrs. Carter and Valiant, Poulton-le-Flyde, near Preston. Second, W. H. Dyson, Horton Bank Top, near Bradford. Commended, E. Harrison, Long Lane, Denton, near Manchester.

Hamburghs (Golden-spangled).—First, W. C. Worrall, Rice House, near Liverpool. Second, G. Brooke, East Parade, Huddersfield. Third, J. Ashcroft, Waterloo, near Ashton-under-Lyne. Highly Commended, S. H. Hyde, Ashton-under-Lyne; N. Marlow, Denton, near Manchester. *Chickens.*—First, G. Brooke, East Parade, Huddersfield. Second, J. Dixon, Bradford. Third, Mrs. H. Sharp, Park Road, Bradford.

Hamburgh Single Cock (Gold or Silver-spangled).—First, D. Harding, Middlewich, Cheshire. Second, Messrs. Haigh and Hartley, Liphill Bank, Holmfirth. Highly Commended, I. Davis, Bull Street, Harbone, near Birmingham; J. Dixon, Bradford; T. Birch, Cornhill, Sheffield.

Hamburgh (Silver-pencilled).—First and Second, W. H. Kerr, Worcester. Third, J. Martin, Claines, Worcester. Commended, R. Dodge, West Street, Sheffield. *Chickens.*—First, J. Dixon, Bradford. Second, H. Marshall, Cotgrave, near Nottingham. Third, Mrs. H. Sharp, Park Road, Bradford.

Hamburgh (Silver-spangled).—First, J. Dixon, Bradford. Second, R. Teebay, Fulwood, near Preston. Third, J. Robinson, Vale House, near Garstang. Highly Commended, R. Teebay, Fulwood, near Preston; Messrs. Bird and Beldon, Shipley, near Bradford. *Chickens.*—First, Messrs. Bird and Beldon, Shipley, near Bradford. Third, J. Dixon, Bradford.

Hamburgh (Gold or Silver-pencilled, Single Cock).—First, W. Harvey, Oxford Street, Upperthorpe. Second, J. Dixon, Bradford. Highly Commended, W. H. Dyson, Horton Bank Top, near Bradford.

Poland (Black with white crests).—First, T. Battye, Holmbridge, near Holmfirth. Second, W. Cannan, Bradford. Third, Mrs. Robinson, Mansfield Woodhouse, Notts. (This class generally commended).

Poland (Golden).—First and Third, J. Dixon, Bradford. Second, G. C. Adkins, the Lightwoods, near Birmingham.

Poland (Silver).—First, G. C. Adkins, the Lightwoods, near Birmingham. Second and Third, J. Dixon, Bradford. Highly Commended, W. Cannan, Bradford. Commended, W. Dawson, Selly Oak, Birmingham.

Single Cock (any colour).—First, J. Dixon, Bradford. Second, F. Hardy, Bowling Old Lane, Bradford. Highly Commended, W. Cannan, Bradford. Commended, G. C. Adkins, the Lightwoods, near Birmingham.

Redcaps.—First, J. Hollins, Owlerton, near Sheffield. Second, R. Birks, Upper Hallam, Rivelin. Third, B. Oates, Owlerton, near Sheffield. Highly Commended, W. Wood, Fir House, Walkley; J. Battison, Dee Street, Sheffield. *Chickens.*—First, J. Hancock, Corn Hill, Sheffield. Second, B. Oates, Owlerton, near Sheffield.

Single Cock.—First, G. Hancock, Corn Hill, Sheffield. Second, W. Wood, Fir View, Walkley.

Any other Distinct Breed.—First, H. M. Hitchwit, Dunchurch, near Rugby (Indian Game). Second, W. Dawson, Hopton Mirfield, adult (Sultan's Fowl). Third, Miss Robinson, Mansfield Woodhouse, Notts. Fourth, J. Andrew, Ashton-under-Lyne. Highly Commended, W. Dawson, Hopton Mirfield (Cuckoo Cochins); Master W. Watkin, Freedom Cottage, Walkley.

Bantams (Golden-laced).—First, G. Peters, Birmingham. Second, Rev. G. F. Hodson, North Petherton, near Bridgewater. Highly Commended, T. H. D. Bayley, Ickwell House, near Biggleswade, Beds. Commended, G. Robson, 46, Saville Street, Hull.

Bantams (Silver-laced).—First, G. Peters, Birmingham, Second, W. Harvey, Oxford Street, Upperthorpe.

Bantams (Black).—First, W. C. Worrall, Rice House, near Liverpool. Second, J. Dixon, Bradford. Commended, G. Linch, Worcester.

Bantams (White).—First, G. Peters, Birmingham. Second, J. Crossland, jun., Wakefield. Highly Commended, F. Hardy, Bowling Old Lane, Bradford. Commended, G. C. Adkins, The Lightwoods, Birmingham; J. Dixon, Bradford.

Game Bantams.—First, W. Sylvester, 16, New Market, Sheffield. Second, J. Crossland, jun., Wakefield. Third, H. Shield, Northampton. Highly Commended, I. Thornton, High Street, Heckmondwike; W. C. Worrall, Rice House, near Liverpool; W. Moore, Little London, near Sheffield; T. H. D. Bayley, Ickwell House, Biggleswade, Beds.

Game Bantams (Single Cock).—First, R. Swift, Southwell, Notts. Second, W. Harvey, Oxford Street, Upperthorpe. Highly Commended, M. Turner, 32, Ribblesdale Place, Preston; H. W. Griffiths, Britannia Square, Worcester; T. H. D. Bayley, Ickwell House, Biggleswade, Beds; H. Worrall, West Derby, near Liverpool.

Geese.—First, J. Dixon, Bradford. Second, J. K. Fowler, Prebendal Farm, Aylesbury. Highly Commended, S. R. Herbert, Powick, near Worcester.

Ducks (White Aylesbury).—First and Third, Mrs. M. Seamons, Hartwell, Aylesbury. Second, J. K. Fowler, Prebendal Farm, Aylesbury. Highly Commended, J. K. Fowler. Commended, Mrs. M. Seamons.

Ducks (Rouen).—First and Second, J. K. Fowler, Prebendal Farm, Aylesbury. Third, T. Robinson, The Gill, Ulverston.

Ducks (Black East Indian).—First, S. Burn, East Terrace, Whitby. Second, G. S. Sainsbury, Rowde, Devizes. Third, J. K. Fowler, Prebendal Farm, Aylesbury.

Ducks (any other variety).—First and Third, J. Dixon, Bradford. Second, T. H. D. Bayley, Ickwell House, Biggleswade, Beds.

Turkeys.—First, J. Dixon, Bradford. No competition for Second.

Game Cock.—First and Sixth, Capt. W. W. Hornby, Knowsley Cottage, Prescot. Second, G. W. Moss, The Beach, Aigburth, near Liverpool. Third, H. Shield, Northampton. Fourth, E. Archer, Malvern. Fifth, H. M. Julian, Market Place, Beverley. Highly Commended, W. Coupe, Langwith, near Mansfield, Notts; W. & M. Grimshaw, Pendle Forest, Burnley; E. Archer; G. W. Moss; J. Fletcher, Stoneclough, near Manchester.

PIGEONS.

Carrier Cock.—First and Third, R. J. Wood, St. James's Street, Nottingham. Second, Master M. Rake, Brandon Hill, Bristol. Highly Commended, J. Deakin, Green Lane, Sheffield.

Carrier Hen.—First, W. H. Boddy, 24, Saville Street, Hull. Second, J. Deakin, Green Lane, Sheffield. Third, W. Cannan, Bradford. Highly Commended, R. J. Wood, St. James's Street, Nottingham.

Powter Cock.—First, Master M. Rake, Brandon Hill, Bristol. Second, G. Deakin, Broughton Villa, Owlerton. Third, W. Taylor, 241, Shalesmoor, Sheffield. Highly Commended, J. Smith, Freedom Road, Walkley, near Sheffield; T. Sorby, Walkley.

Powter Hen.—First, Master M. Rake, Brandon Hill, Bristol. Second, W. Taylor, 241, Shalesmoor, Sheffield. Third, T. Sorby, Walkley. Highly Commended, J. Smith, Freedom Road, Walkley, near Sheffield.

Short-faced Tumblers.—First, Master M. Rake, Brandon Hill, Bristol. Second, W. Cannan, Bradford. Commended, R. Swift, Southwell, Notts; R. J. Wood, St. James's Street, Nottingham.

Runts.—Prize, W. Cannan, Bradford.

Fantails.—First, Miss Brown, Greaves Street, Hampden View, Sheffield. Second, J. C. Brierley, Gedling, Notts.

Jacobins.—First and Second, Mrs. Taylor, Hampden View, Sheffield.

Trumpeters.—First and Second, W. H. C. Oates, Besthorpe, Newark, Notts. Commended, Master M. Rake, Brandon Hill, Bristol; J. Key, Beverley.

Barbs.—Prize, J. H. Craijie, Woodlands, Chigwell, Essex.

Turbits.—First, Master M. Rake, Brandon Hill, Bristol. Second, J. C. Brierley, Gedling, Notts.

Owls.—First, W. Cannan, Bradford. Second, Master M. Rake, Brandon Hill, Bristol. Commended, R. J. Wood, St. James's Street, Nottingham.

Any other New or Distinct Variety.—First, Master M. Rake, Brandon Hill, Bristol (Spangled Suabians). Second, R. Swift, Southwell, Notts (Meeves). Commended, R. Swift, Southwell, Notts (White Dragons).

Rabbits (*For Length of Ears*).—First, J. Guest, Wrentham Street, Birmingham. Second, S. Coleman, Wrentham Street, Birmingham. *For Colour.*—First, W. Hudson, Toresmill Street, Chesterfield. Second, B. Gale, 44, Clarence Street, Sheffield. *For Weight.*—First, W. Rollisson, Granville Street, Park, Sheffield. Second, J. Carter, 18, Church Street, Sheffield.

Judge of all the classes of poultry, except Game and Redcaps., Mr. Edward Hewitt, Sparkbrook, Birmingham; of *Game* class, Mr. Challoner, of Worksop; of *Redcaps*, a local amateur; of *Pigeons*, Mr. B. T. Tegetmeier, of Muswell Hill, London.

THE LOXIA CARDINALIS.

Circumstances prevented me from earlier noticing the question by "A Subscriber," at page 192, in relation to the Virginian Nightingale. Your correspondent must not expect to find anything like science as to names in the generality of bird-dealers. What they usually call a Cardinal (party-coloured, with a red breast, I think of Africa), is not to be confounded with the Scarlet American Cardinal Grosbeak (*Loxia Cardinalis* of Wilson, or, according to Bonaparte, *Fringilla Cardinalis*). An abridged extract from Wilson's "American Ornithology" will, perhaps, be useful to "A Subscriber." "This," says he, "is one of our most common cage birds, not only in America, but even in Europe; numbers of them being carried to France and England, in which last country they are usually called Virginian Nightingales. To this name they are fully entitled from the clearness and variety of their notes. They are (in America) variously called Red-bird, Virginian Nightingale, and Crested Red-bird, to distinguish them from another beautiful species—the Red Tanager. They are hardy birds, easily kept, sing six or eight months in the year, and are most lively in wet weather. One peculiarity in the female of this species is that she often sings nearly as well as the male. [This I can testify.] If well taken care of they will live to a considerable age. One is said to have lived in a cage upwards of twenty-one years."

I may add that a friend assured me he had known one kept in England for twenty-five years. I think my own bird must be verging towards eighteen years old, with not one sign of decrepitude.

These birds sell high at the Pantheon, Oxford Street; but at certain times, on the arrival of a quantity, they may be had reasonably of the dealers.

To another of your correspondents "Rosemary," I would say that his experience is too short to enable him to speak positively as to the delicacy of the Virginian Nightingale's "lungs," &c. I have little doubt that many die on arrival from improper treatment, and especially in small cages. To the few weeks of "Rosemary's" experience, I may reasonable oppose my fifteen years; and I believe no native bird would have better withstood the cold to which, in winter, this foreigner has all along been subjected in my garden. But ample space for exercise of the wings is absolutely needed in so active a creature. I have little doubt as to the gastronomical merits of the Virginian Quail, advocated by "Rosemary;" but I had less the spit and the kitchen in view than the melody and adornment of our parks and woods, in making my former communication.—H. T.

BEES AND THISTLES IN TASMANIA.

A gentleman named Dr. Wilson, who had made several voyages to Van Diemen's Land, had observed that there were not any bees producing honey; he, therefore, on one of his voyages, took with him a hive of bees. It was placed on deck, and the little voyagers were liberally supplied with moist sugar; and I understood the bees had perfect liberty, and however far they might have flown across the watery waste, always returned to the hive, and were conveyed sixteen thousand miles to Hobart Town. Dr. Wilson generously placed the hive at the disposal of Governor Arthur. It was placed in Government Garden; and so abundant was the food, and so adapted the climate to the bees, that I was told that a single hive of bees would produce twenty stocks in a year, the first swarms each yielding new swarms. The Governor politely presented his friends with hives of bees, so that, in a very few seasons, most gardens in the colony were furnished with them.

I still recollect the very pleasing sensation produced in my mind when I first saw and heard the bee in Van Diemen's Land. It was Sunday, and I had retired to a shady walk in a garden in the country for study and meditation. An unusual sound struck my ear—familiar, though not immediately remembered. I sought for the little humming insect, when, to my great surprise and delight, I discovered a bee: it was gathering honey from the blossoms of the gooseberry. *Now* the bee is found in all the settled districts of the colony. In summer, many swarms are found in the bush, and large quan-

tities of honey are frequently found in the hollow trees. It is so plentiful that, in the summer season, it may be bought for 4*d.* the pound; and it is probable that before long beeswax will form a staple article of commerce, and thus assist to enrich the colony.

An emigrant from Scotland, proud of his nationality, brought with him to the colony a packet of thistle seed; and as soon as he had settled upon his grant of land, he scattered the seed around his dwelling, and the emblem of his native land was soon manifest in its forbidding grandeur. Great was the admiration of his friends and countrymen, and some almost wept as the thistle brought back to their memory the scenes of their own dear fatherland. The seed was liberally supplied to friends far and near, and soon the down was seen soaring over the hills of Tasmania, bearing the seed in its flight, and the thistle was no longer a stranger in this our adopted country. But, mark the result! The thistle soon manifested itself a usurper, and took possession of the soil, to the exclusion of the native grasses and herbs. In a very few years the colonists began to take the alarm. Large paddocks were overgrown with the pernicious weed; and not only was the pasture-land destroyed, but, in some cases, the land became inaccessible to man or beast. In autumn the seeds mount in the air, looking like snow, and I have seen the grass perfectly white with the down. The mischief is irreparable, and the thistle will never be extirpated in Van Diemen's Land, while the curse pronounced upon the ground for Adam's sake is inflicted; and some think that the thistle will usurp the vast plains of Australia, as its congener has the pampas of South America.

Now, contrast these two actions in their results—the introduction of a hive of bees, and the introduction of a packet of thistle seed.

Take my own case as an illustration. Without expense or trouble on my part—for any old chest or cask serves for a hive—the bees collect me honey and wax. In the autumn we take as much honey as furnishes our table, and the children use it profusely all the year round, and the refuse makes admirable vinegar. But the thistle is an intolerable nuisance. Mine is considered a small farm, being only two thousand acres. Of course, the principal part of the land is used as a sheep-walk. I have only occupied it for six years, and when I entered upon it the thistles were by no means so numerous as on the neighbouring estates; yet, during the last six years, I have, for four months in spring and summer in each year, devoted many days to its extirpation; some weeks, each six days: and sometimes with one man, and occasionally the whole establishment, I would take the field against the prickly enemy; and this day 16th of January, I and my eldest son have had a weary walk making a circuit of at least a dozen miles, peeping into and examining every dell and nook, for the sullen gentleman, armed at all points, likes a retired quiet spot to luxuriate in unmolested. Some hundreds have we this day destroyed, and there are yet many hills and valleys to examine; but one retired spot, formed by a bend of the river quite dispirited us, and the task of destroying hundreds of tall weeds is left for another day; and my labour is each year to be begun, for my careless neighbours supply me with abundance of seed.

Now, weigh well what may be the result of your actions, even of what you may deem a trifling one; for this is certain, each of your actions is either of faith or of sin. The one will produce health and sweetness; the other labour and sorrow—a curse; and no power can recall an act. All the powers of the inhabitants of Van Diemen's Land could not destroy the bees or extirpate the thistle. The importation of bees was an act of benevolence: the importation of the thistle had its origin in thoughtlessness and folly.—(*Sunday at Home.*)

CAPTURING THE QUEEN AT SWARMING.

While watching the departure of a top swarm from one of my hives the other day, I had a fine view of the queen, which made her appearance on the board when about three-fourths of the departing colony were in the air. She appeared to be a fine, large, bulky lady, very loath to take wing. I put my finger upon her, and was about transferring her to the box destined for the swarm. A friend standing by dissuaded me from it. On getting the swarm hived from the centre of an old gooseberry bush in which they had clustered, and being pretty well punished between stings and scratches, I regretted not acting on my first impression. Should I have done right?

Is it necessary for the subsequent settling and prosperity of the colony that they should have the liberty of a flight, and gather at some spot before hiving? If not, would it be advisable and save a deal of trouble, to capture in every case the queen and place her at once in her new home?—P. T. O.

[Had you captured the queen and placed her at once in her new habitation with so many of her subjects as possible, you might, and probably would, have escaped the stings and scratches you mention. The mere act of taking flight and clustering is certainly not at all necessary for the subsequent prosperity of the colony. It is not always possible to secure a queen in the act of leading off a swarm; besides which, there is considerable risk of injuring her in so doing. For these reasons it will be found impracticable as well as unadvisable to adopt this course in all cases.]

APPROPRIATING THE CONTENTS OF HIVES THAT HAVE SWARMED.

I have three old-fashioned straw hives which stand on the condemned list of my apiary, after they have thrown off their swarms. Now, by which of the following plans should I be the greater gainer:—Suppose I drum out the bees twenty-four days after swarming (say a month hence), I know I can appropriate their store free from brood, and transfer the bees to their next neighbours to be retained as stocks, the increased force will, of course, materially improve these as accumulators? Or, on the other hand, suppose I let them stand over till the middle of September (close of the honey season in this quarter), the young queens left in the hives will speedily increase the population, and the combs being all ready to hand, under favourable circumstances, should bleed well in September? In a word, whether will the bees remaining after swarming do most good in their old combs, or added to new colonies of this season? Perhaps you or some of your correspondents who have experimented on this can advise me.—P. T. O.

[Much depends upon the state of the hives to be operated on, as well as on the object you have in view. If very populous, the bees expelled twenty-four days after swarming might form distinct colonies, should you be desirous of increasing your number of stocks. Otherwise we should let them stand until autumn before driving and appropriating their stores.]

EXPELLING DRONES ON THEIR APPEARANCE.

In a two-year-old wooden hive, which threw off two swarms last season, the drones have but very recently appeared. I observe for two or three mornings back several of these in a weakened state about the entrance. The workers stoutly resist my reintroducing them. What can be the cause? I never noticed drones expelled with us before beginning of August. I was desirous that this hive should swarm. Are my hopes of this weakened by these proceedings? and should I put on a super? By giving me your opinion on these different points you will confer a great favour on—A Young Apiarian, not of Bagshot.

[The premature expulsion of drones shows that the season is a very bad one, and augurs ill for your prospect of obtaining swarms. You may put on a super, but a prompt change of weather may yet do much. "A Devonshire Bee-keeper" mentions a similar occurrence as having taken place in his own apiary.]

OUR LETTER BOX.

Hen with White Scurf (*Walter*).—Rub her face and legs with sulphur ointment. Let her have all the green food she chooses; leave off giving her barley entirely, and feed her with soft food only, such as boiled potatoes and pollard mixed to a dry pasty state. Let her have a teaspoonful of flowers of sulphur in her food every second day. If this treatment does not cure her, substitute mild mercurial ointment for the sulphur ointment.

Turkeys with Gummy Eyes (*E. D.*).—This discharge of matter from the eyelids must be occasioned by the birds being exposed to the wet and ungenial weather. Keep them in a dry, sheltered, but well ventilated place, yet well supplied with green food. Give them a little bread soaked in ale daily; and two grains of powdered sulphate of copper twice a-week mixed with their soft food.

Driving Bees (*R. W. B.*).—Driving had better be postponed until autumn. The plan you propose would probably prevent swarming in both stocks; whilst a natural swarm would stock your Taylor's hive in a far more efficient manner. We doubt whether we exactly understand your second question; but, as a general rule, forcible interference with bees is to be deprecated. Ligurian stocks cannot be purchased in this country.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JULY 10—16, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
10	Tu	Cuscuta Europæa, &c.	30.179—30.128	86—50	W.	—	57 af 3	13 af 8	40 10	21	5 3	192
11	W	Pulmonaria maritima.	30.229—30.102	87—49	S.	—	58 3	12 8	56 10	☾	5 11	193
12	Th	Menyanthes nymphoides.	30.122—30.052	93—52	S.W.	—	59 3	12 8	15 11	23	5 19	194
13	F	Anagallis tenella.	30.127—30.095	91—45	S.W.	—	iv	11 8	42 11	24	5 26	195
14	S	Azalea procumbens.	30.250—30.149	76—47	N.E.	—	1 4	10 8	morn.	25	5 33	196
15	Sun	6 Sunday after Trinity.	30.201—30.149	84—48	N.W.	—	2 4	9 8	16 0	26	5 39	197
16	M	Campanulas, several.	30.213—30.107	86—53	W.	—	4 4	8 8	7 1	27	5 45	198

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 75.3° and 51.3° respectively. The greatest heat, 93½°, occurred on the 14th, in 1847; and the lowest cold, 38°, on the 10th, in 1851. During the period 142 days were fine, and on 89 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Artichokes: when the heads are cut, the stems to be cut close to the roots, the stools to be cleared from decayed leaves, and the surface of the soil about them to be loosened with the hoe. *Asparagus*, now, in the midst of the growing season, and while the soil is moist apply good soakings of manure water with a good portion of salt added thereto. It is in many places advisable to put stakes and lines to the outside rows to prevent heavy rains or winds breaking down the plants, and, consequently, doing some damage to the crowns. *Broccoli*, lose no time in getting out the varieties that come in during the autumn. They may now take the place of the early Peas. *Cauliflowers*, earth up those that were put in the beginning of last month; plant more for coming into use in the autumn. *Celery*, continue to get out the main crops, loosen the earth about the early crops, and give them good supplies of water, if there is not sufficient rain to keep the soil quite moist. *Garlic* and *Shallots*, pull up as soon as the tops begin to decay; after allowing them to remain on the ground a day or two to dry, tie them in bundles and hang them in a dry loft or root-cellar. *Herbs*, when wanted for drying, when the bloom begins to expand cut them on a dry day and spread them thinly in a shed, which is preferable to drying them in the sun. When dry to be tied in convenient bundles and hung up in their winter quarters. *Mushrooms*, save and prepare horse droppings for beds, to produce through the autumn and winter. *Sea-kale*, to be treated with manure water and salt, as recommended for Asparagus; the crowns to be duly thinned. Continue to put out winter stuff into every spare piece of ground, and prick out young plants for future planting.

FLOWER GARDEN.

Continue to propagate Carnations and Picotees by layers, Pinks by pipings, and Pansies by cuttings. Tulip seed, if wanted, to be gathered when the stem is yellow from the capsule to the root. Supply Dahlias with water, and occasionally with weak liquid manure, mulch round the roots and insert small sticks, to which the laterals may be tied when sufficiently long. Perpetual Roses to be cut back as they go out of bloom, the decayed flowers to be removed, and to be supplied with the richest manure water to encourage a second growth and bloom. Mow and roll lawns, and have a ready hand for the extirpation of weeds.

FRUIT GARDEN.

Spur in a great portion of the young wood of Currants and Gooseberries to increase their productiveness, and also the size of the fruit. As Strawberries are colouring badly, and some rotting in shady situations, it is advisable to prop up the fruitstalks with forked sticks to expose them to as much sun and air as possible. Vines against walls to be closely nailed in to obtain the benefit of what heat can be thus got.

STOVE.

Continue to encourage Aphelandras, Begonias, Eranthemums, Euphorbias, Justicias, &c., for winter blooming. Start *Achimenes picta* and *Gesnera zebrina* for the same purpose. Maintain a moist, growing temperature with plenty of air, and keep down insects.

GREENHOUSE AND CONSERVATORY.

Many of the stove plants in some establishments will now be occupying either of these houses while the regular occupants are in the open air; but as many of the New Holland plants require the assistance of a little heat to insure good growth, they may be kept in the same house with stove plants, regulating the temperature so as to be suitable and agreeable to all the plants. Many of the New Holland plants in the open air will require to have their straggling shoots cut in. *Boronia pinnata* and *B. serrulata* to be stopped back freely, and to be kept in a gentle heat to start them into fresh growth. Keep down mildew by dusting the plants occasionally with sulphur after syringing them. Remove the flowers of Heaths that have done blooming; and if straggling stop the plants well in. A quantity of stocky plants of Scarlet and Variegated Geraniums, Heliotropes, late-struck Fuchsias to be encouraged for late autumn blooming. Young specimens of hard-wooded plants to be carefully trained, keeping the shoots neatly tied out or pegged down, to insure close, compact foundations, upon which the beauties of the superstructure, or future success, will mainly depend. Balsams, Cockscombs, Thunbergias, and other such annuals intended for the decoration of the conservatory to be finally potted, using soil of a light and rich description.

PITS AND FRAMES.

Chinese Primroses to be placed in a close frame, and to be shaded from the sun, where they will make good progress if very backward. A little bottom heat will be of service to them. Cinerarias, if wanted early, the seedlings when large enough, or suckers, to be potted and placed in a close, shady frame till rooted, to be kept free from thrips by Gishurst Compound, or by fumigations of tobacco.

William Keane.

THE BEDDING OUT AT THE CRYSTAL PALACE IN 1860.

In our politics there are whigs, tories, and radicals, all able and willing to manage the constitution, each after their own fashion. And there have been three sets of managing-planters in the constitution of the Crystal Palace Company; but whether they were whigs, tories, or radicals, or all three, or none of them, is more than I can tell; but I have had no difficulty in telling the changes in the planting out, and this is the third change, and is different from the preceding ones; it is also a marked improvement. But we must recollect the immense difficulty of making a first start on such a grand scale. Also, that Mr. Eyles had to plant from the pro-

pagation of his predecessor, as Mr. Gordon has had to do from the propagation of Mr. Eyles; and it is perfectly impossible, even if the three were three brothers, that any one of them could altogether comprehend the exact mind of either of the other two, so as to be able to plant as the other who provided for the planting intended to plant—a succession of realised difficulties, in fact. If you want to be just as well as generous, you can hardly find room for criticising a planter of bedding plants who has not provided his own stock—that is, who has not had an opportunity of ordering the propagation according to the way he intended to plant. But Mr. Gordon was propagator and head manager for the first two head gardeners at the Crystal Palace, and it was a wise and very economical plan of the Directors to have seized the opportunity of profiting by so much practical experience, instead of sending out for far-fetched birds of feather, for a stranger to come in and manage. With these advantages in his favour we must criticise Mr. Gordon's planting to a level beam which places the scales on the same level.

Well, he has done it, and done it well, too, and has made considerable improvements on the style of planting; and this planting I booked and criticised before I had ever seen Mr. Gordon's face, as far as I know; and when all was done I went in to hear the French singers, and stopped to see the end of it, and June was well nigh over before I could get home.

Of Geraniums, *Sidonia, King Rufus, Quercifolium multiflorum, Dandy, Grossulariæfolium, Ignescens superbum,* and *Ignescens minor* (for *Shrubland Pet*), *Unique, Black Prince* (one of the *Citriodorums*), and a few others of the greenhouse and scarcer kinds of bedding plants are out in considerable quantities. No *Tom Thumbs* at all this season. The *Crystal Palace Scarlet* and *Punch* are the best plain-leaved scarlets. *Trentham Rose,* for the first line, and *Christine,* ditto, are the two best of *their* pinks. *Cottage Maid* is their best horseshoe scarlet. *Compactum* is going out, and *Mrs. Vernon* is coming in. *Fothergillii* is in great numbers, and is their best Nosegay Geranium; but they have other nosegays and minimums for which they are almost daft. *Tom Thumb's Bride* is their representative of *Lucia rosea,* and does remarkably well at the Crystal Palace. *Le Titien* is given up for bad habit, and *Rubens* is taken in good earnest as the best salmon-tinted bedder.

Lantanas, both of the *Crocea* and *Sellowii* breeds are there, and abundance of *Calceolaria amplexicaulis.* But the grand secret is, another new bedder of the *Lobbianum* section of *Tropæolums,* with the very same style and habit as *elegans* and *Stamfordianum,* and much larger flowers of quite a different colour. A canary yellow, nearly in the way of *Triomphe de Godalming,* with fine dark spots all round over the eye. It is the nearest thing to what Mr. Robson has been praying for with such earnestness, to supplement the yellow Calceolarias, when they go off without wishing one good bye, and the name is *Triomphe de Hyris.* Now for the nurseries here is a trade plant, if you please. No committee is half so good as the floral flower-beds on the open lawn; and no bedder we have had for years sold better than this must do. To show you Mr. Gordon's confidence in it, he has planted every other circle with it along the whole stretch of the bottom on the grand terrace, alternating with *Tropæolum elegans,* and there must be eleven or twelve beds of each of them in that one run. And there is one experimental bed with a *fac simile* of *Tropæolum Brilliant,* not the *Brilliant* of the common Nasturtium, which was cancelled by The Cottage Gardener when it was sent for judgment on account of a previous *Brilliant* of the Lobbianum section. This is larger than the true *Brilliant,* is of the very same tint, and blooms from May to October. The *Brilliant* only comes into bloom at the end of August, and was given up in the Experimental on that account. It is a variety of *Lilli Schmidt;* and if it answers as well as *elegans* and *Triomphe de Hyris,* it will be a good addition to our limited number of really good new bedders.

There is one bed of *Farfugium grande* and *Punch* Geranium, plant for plant; and some of the fine-leaved Begonias will have to be used in the same way. And while I think of it, there is another move about these Begonias, which suggested itself from another basket of them just received into the Experimental, which must be proved next winter. They make strong fleshy stems, from which the leaves and flowers issue; and I can see no reason why these fleshy stems without the leaves may not be kept dry or half dry all the winter, like old stumps of Scarlet Geraniums, for bedding purposes, both to plant out in large lumps next season, and to propagate from in the spring, when the Cucumbers and cutting-frames are set to work. Why should that move not answer as my Farfugium has done last winter? It lost its leaves by the first frost, and kept that way in the open ground all the winter, and did not begin to sprout until the end of March; but it took no hurt. And what is to hinder large lumps of *Begonia Rex* and the like of it from doing as well, packed away in dry mould in the cellar, or on some dry shelf near the fire-place to the greenhouse? Make herbaceous plants of them, and keep them dry and from the frost, just like Potatoes; and all who like may then possess them for the decorations, and there is no end or limit to their propagation in the spring.

Now for the wheel within the wheel, and the bedding on the Rose Mount. The first improvement there is in the rosery itself, which is in six great divisions; and each division is edged all round with the large common China Rose. This China is now trained low as Verbenas, and makes a fine fringe to the Perpetuals. The six angle-beds at the corners of the six walks up the Rose Mount are thus planted, beginning opposite the railway entrance, and going round by the right-hand side. First all of *Cottage Maid* horseshoe Geranium edged with *Flower of the Day;* second, a plain-leaved Scarlet Geranium edged with the crimson Ivyleaf; third, *Fothergillii,* or Purple Nosegay, edged with *Flower of the Day;* fourth, *Calceolaria amplexicaulis* and *Ageratum Mexicanum,* plant for plant, and edged with the variegated Ageratum; fifth, *Punch,* edged with Cerastium; and the sixth with *Ignescens superba* and variegated Alyssum. Then for match beds and single beds along these six walks, I select the following for you, but booked them all for myself for future comparison. A single bed of *Alma* variegated Geranium, and mixed with the scarlet variegated *Verbena pulchella,* alias *Impératrice Eugénie,* and alias *Manetti coccinea*—a splendid bed. *Tropæolum elegans,* several beds, and various edgings of Verbena; two noble beds of the finest of all the gay greenhouse Geraniums *Sidonia*—one edged with lilac Ivyleaf, the other with crimson ditto. Orange-scarlet or salmon-coloured Geranium *Rubens,* and repeated. The strong variegated Geranium called *Bijou. Salvia patens* edged with a dark Heliotrope. *Ignescens superba* and *King Rufus* edged with *Shrubland Pet,* but not the true one—it is the old *Ignescens minor. Sidonia, Golden Chain,* and *King Rufus* were so puny twenty years back that no one could get them to stand out of doors; but good gardeners brought them to stand the tempests on this Mount. A single bed of *Dandy* and *Lobelia speciosa,* plant for plant, is just fit for a fairy queen; they stand eight or nine inches apart all over the bed. *Flower of the Day,* and variegated Alyssum, plant for plant—fine in dull days, and too good for a good eye in the sun. *King Rufus,* which is in the way of *Touchstone,* and *Rouge et Noir* and *Dr. Lindley,* edged with two rows of *Black Prince*—a capital, new, very dwarf edging Geranium of the citriodorum breed. *Mangles' variegated* Geranium and *Purple King* Verbena, plant for plant. A bed of *Brilliant var.* Geranium, edged with *Baron Hugel* ditto,

the first time the Baron mounted the Mount at Sydenham. He can be seen on that side of the Mount opposite the water temples; pray look for him if you happen not to know him. A bed of *Fuchsia*, of the *globosa major* breed. One of *Flower of the Day* and *Perilla Nankinensis* in concentric rings. The centre half of one bed with Lantanas of the *crocea* breed; the outer half of *Lantana Sellowii*, or its breed, trained down. A bed of *Brilliant*, edged with *Lady Plymouth*. In the Experimental these two are planted plant for plant in one bed, and look nice. A bed of *Unique*, edged with two rows of *Dandy*. The rest round the Mount are more ordinary beds. The slope above the Rose Bank is also in six compartments, and planted in opposite duplicates—remarkably effective, each being in three distinct colours; as one-third of the first compartment, the lower third, is with *Tropæolum elegans* in three rows; the middle third part of *Purple King* Verbena, also in three rows; and the top third part with the *Crystal Palace Scarlet* Geranium in four rows. Then the opposite quarter, or rather sixth part, is planted in the same way with the same kinds of plants.

The second division is thus planted—*Purple King* Verbena at bottom, Calceolarias in the centre, and *Cerise Unique* at top; and the third is—*Flower of the Day* at bottom, *Crystal Palace Scarlet* in the centre, and Calceolarias at top, which, doubled, finishes this slope, and we are up on the summit of the Mount, and have six panel-beds sunk below the surface. They, too, are in duplicates—thus, two opposite with *Ignescens superba* in the centre in five rows, three rows of *Tropæolum elegans* round it, and two rows of *Mangles' Variegated* on the outside all round,—very rich indeed. The next pair are—*Cottage Maid* Geranium in the centre, yellow Calceolaria all round, and an edging of variegated Alyssum. The last pair—*Cerise Unique* in the centre, *Purple King* Verbena, and the two rows of Cerastium outside. Then there are four circular beds under the flag-staff, in the very centre of the top, one for the end of each of the four guy ropes which sustain the flag-staff,—the four are alike. *Fothergillii* for centres, two rows of *Flower of the Day*, one row of *Crystal Palace Scarlet*, and an edging of blue *Lobelia speciosa*.

This Mount is the best school for country cousins who come up to learn how to put the beds. The rest are more for uncles and aunts who have made their fortunes, and wish to show them off in their munificent patronage of gardening. The ten large Hollyhock-beds in front of the railway entrance have each three rows of Dahlias round the Hollyhocks; then a row of plain-leaved Scarlet Geraniums, as *Punch*, *Cottage Maid*, *Fothergillii*, and *Cerise Unique*; and outside—what would you think? each bed with a ring of blue Nemophila, just peeping or sprouting through the surface of the ground on the last day of June; and early readers of The Cottage Gardener know that "how" such Nemophilas will bloom till they are up to the necks in snow. What a pity that "we" did not think of that at the right time. The edging of the grey or hoary Teucrium-looking Salvia round the tree Pæonies is, or was then, the very finest and best-placed thing in the whole garden. Mr. Cae was the great introducer of this plant to flower gardens. Twenty years back he had it in abundance at Bedford Lodge, near Kensington.

On leaving the water temples on the way to the grand terrace, or, looking down from the grand terrace, the line of long beds on both sides and round the grand centre basin are planted on one uniform plan, and the circles between them on a different plan. The former have the centres in three rows of Ageratums, with two rows of yellow Calceolarias on each side, and one row of *Crystal Palace Scarlet* Geranium on each side of the Calceolarias, and an edging of *Nierembergia gracilis* runs all round each bed. At a long distance these lines of beds look much on the ribbon plan. The circle in the centre of each row is all in Cerastium, and the circles above and below the centre are in one distinct kind of colour, as scarlet, purple, blue, and white; and below these and round the great basin, the dwarf Dahlias occupy the centres of so many of the long beds. The line of long beds at the bottom of the grand terrace is also in three uniform colours throughout—*Scarlet Crystal Palace* in the centre, a row of *Purple King* on each side, and an edging of *Flower of the Day* all round. Then the *elegans* and *Triomphe de Hyris* Tropæolums occupy all the circles "turnabout."

The sweep of the Araucarias in the centre is also different. The Araucarias have blue Verbenas round, as last year, with thin edgings of Cerastium outside and inside of the Lobelias. The pedestal-beds beween the Araucarias are of pink and scarlet alternately, and edged with *Flower of the Day*, *Trentham Rose*, and *Christine*, for pinks; and *Cottage Maid* for the scarlet ones. Opposite the Araucarias are the following beds:—*Christine*, edged with *Lobelia speciosa*, *Purple King* Verbena and Alyssum, *Baron Hugel*, and *Lady Plymouth*. They say when two are in a bed neither of them can be in the middle; but here *Baron Hugel* occupies the middle of the bed absolutely, and *Lady Plymouth* only the outsides of the bed. Bad luck to the planters! but they put a blue Verbena round her. The variety of *Lilli Schmidt* Tropæolum is here with an edging of *Mangles*. *Mrs. Lennox* variegated Geranium and *Boule de Niege* occupy another bed, plant for plant, with a blue edging; and a very good scarlet Geranium, called *Attraction*, occupies another bed, with a band of *Mangles' Variegated* round it.

The two chain patterns are yellow in the centre with Calceolarias, with two rows of *Crystal Palace Scarlet* round; and the edging and links between the beds of the chain are in *Mangles' Variegated*, giving a white edging to every one of the principal beds on that grand terrace, and more white all over the gardens than they ever had before.

The independent circles between the Rhododendron-beds on this terrace are each on its own merits; and any mortal thing would do in any one of them on that score. Here are the Farfugium and *Punch*; another with the centre of *Bijou*, variegated with a ring of "Improved Nosegay" round it, and an edging of the *Golden Chain*; in another of them is *Sidonia* in the centre, with *Quercifolium floribundum* round, and an edging of *Black Prince* aforesaid. But classicals will gnash their teeth at such barbarisms as *Rhododendron arboreum album* by Dr. Lindley in "Bot. Reg.," and *Pelargonium quercifolium floribundum* by Mr. Gordon, and all the rest of us on our own terraces; but if this style of bedding goes on much longer, who knows but we may get out of all these neuter genders together? The farthest-off bed of all this independent lot is of *Fothergillii* and *Kingsbury Pet*. Another near it is *King Rufus* in the centre and *St. Clare* variegated Geranium, with carnea or salmon-coloured flowers. Another with *Christine* and *Minimum* Nosegay. Another with *Alma* var. Geraniums, and the scarlet-striped *Verbena pulchella*—a gem of a bed as aforesaid.

The "drop-beds" on the banks which flank the two wings of the Palace, eight in number, on each end of the garden, are of *Flower of the Day*, edged with *Purple King* Verbena; and in the hollow of the arches, or reversed festoons, between the drop-beds, one row of *Crystal Palace Scarlet* Geranium suffices to fill up the space for flowers as closely as I have filled my space to specify to all my readers the specifications on which the planting of 1860 was done at the Crystal Palace; and yet I must have a P.S. to say that all the vases in some of the runs and some in the roundabouts have variegated Geraniums round the Scarlet ones. D. Beaton.

MANAGEMENT OF CYCLAMENS AT REST.

I have some Cyclamens in five-inch pots; the bulbs are almost as large as the pots; they are dried off and at rest. Would you say if they should be kept quite dry, and when they

should be potted? An outline of the cultivation would oblige—A Young Gardener.

[Very large bulbs of the *Persicum*, and other spring-flowering Cyclamens, will take very little hurt from being left in the pots and quite dry all the summer to the end of August. But a better plan is to turn out every Cyclamen as soon as no more watering is wanted, or when the leaves begin to fade; to plant the balls entire in a warm, sunny border, there to take their chance of summer rains like all our own "Lilies of the Field," which we call spring bulbs; to watch them in the autumn, and when the young leaves are seen to take up the bulbs, and shake off the old ball, and pot in good loamy soil, and very good drainage, and give them "all the weather" to Christmas, except it be frosty. They and the Ixias in a cold frame would do well together, and all of them require very little water till the new year; and if they were plunged to the rims in sand or fine cinder ashes, they would need no water till the first fine weather in January. *Cyclamen vernum*, as true as Sweet's, and as sure as Gordon's, has been lying idle in a pot with us since we had it at the tail of last autumn. The pot was just kept from the frost, plunged in an open border from the middle of February, the rain kept from it by another pot turned upside down over it, and the pot has not yet been once hand-watered. Under that, the most natural treatment, the bulb on the first day of July showed two fresh leaves, which are now doing "as well as can be expected." Perhaps this is the only true *Cyclamen vernum* within one hundred miles of London. It has the rugged protuberance over the crown from which it blooms, as Sweet says, and no other Cyclamen has that way of blooming. Gordon says it blooms invariably in November, and is over by Christmas, and that it should be called *hyemale* instead of *vernum*. Ours will be under a west wall plunged in the pot till the frost comes, and if it blooms it will be shown to the Floral Committee.]

FLOWER SHOW AT ISLEWORTH.

(BY OUR OWN REPORTER.)

On Friday last a "Show" of flowers and plants took place at Isleworth, in the grounds of Gordon House, belonging to Mr. Justice Halliburton, M.P. It is usual when beginning a description of English out-door exhibitions, or fêtes, to write, "The day opened fine," or, "The weather was all that could be desired," &c.; but in the present instance we are sorry to say that the day, although not absolutely "horrid," conducted itself with an impropriety that could only be compared to that curious simile of unpleasantness which the erratic author of "Childe Harold" expresses in the words—

> "——— a woman piqued, who wants her will,
> Alternate smiles and tears."

As soon as the grounds were opened to the public at one o'clock we were treated, or rather *mal*treated, to a very heavy thunder shower of more than average duration; this deterred many of the neighbouring gentry from coming out, as they otherwise would have done. Mr. Lewis, one of the Judges, looked up very imploringly in the direction of where a clear sky ought to have been, in the hope of catching the eye of the clerk of the weather, or of exchanging a friendly wink with that great meteorological bashaw, but to no purpose; his highness seemed bent on carrying matters beyond a joke, although he was trying to make us believe that he was only laying the dust, and bringing the green verdure out into striking relief with the rainbow-tinted costumes of the ladies. However, in about three-quarters of an hour the sun pushed his curtain of leaden clouds aside, and came forth in great majesty. The grounds now began to fill rapidly; but when bordering on the hour of four, the clerk of the weather, being an aged, cynical, spiteful, individual, took the sun off duty, because he was so welcomed by the sweet smiles of the fair faces below, and instantly turned on such an indecent storm of thunder, lightning, and rain, as to compel everybody to run for shelter. This was, happily, easy of accomplishment, for care had been taken to secure two very large marquees from Mr. Blake's manufactory at Ealing. Here the company were detained for nearly an hour; and it was curious to look at the long rows of well-dressed ladies, in every shade of colour, from bridal muslin to funereal black, standing in front of rows of Geraniums of every tint, like themselves, but painted by the cunning of a Hand which the milliner might hope for but can never attain. This last shower was, without intending a pun, a regular damper; the only comfort derivable at the time was in the conservatory, which had been converted into a refreshment-room, and was well supplied with eatables and drinkables, under the management of Mr. Pepper, of Isleworth. Thanks to the excellent quality of the marquees, every one who trusted to them escaped a heavy wetting, and felt correspondingly grateful; but this last storm-shower almost converted the whole of the green sward into a swamp, planks being laid down to keep the communications open.

Her Grace the Duchess Dowager of Northumberland gave £12, to be contended for as flower-prizes, and the following is the order of merit assigned to each by the Judges:—

Mr. W. F. Watson, of Isleworth, exhibited a stand of Calceolarias, Geraniums, Fuchsias, cut Roses, and other flowers, under the culture of Mr. James, his gardener. They were very deservedly admired, and the first prize was awarded to them.

The second prize was given to Mr. Uzzelli, gardener to Her Grace, the Duchess Dowager of Northumberland, for a very excellent miscellaneous collection of Geraniums and hardy plants.

There were two third prizes. They were for a general stand of cut Roses, Fuchsias, Ferns, &c., and fell to the lot of Mr. Sewel, gardener to J. McAndrew, Esq., and Mr. Wiggins, gardener to E. Beck, Esq., Twickenham. Mr. Martin, of Isleworth, obtained an extra prize.

There was a basket or two of fruit, but nothing to require any special observations.

Mr. Dobson and Mr. Lewis were the Judges of the flowers.

Mr. J. Wilmot, of Isleworth, took the first prize for Strawberries, and also a first prize for Grapes; the second was awarded to Mr. James, Mr. Watson's gardener; and the third to Mr. Lewis. The Strawberries, considering the very backward season we have had for soft fruit, were most creditable to the growers; and the Grapes were particularly good. Well defined in form, clear in texture, and full.

We must not omit to mention that Mr. Dobson had a most magnificent stand of Geraniums and cut flowers, which, however, he did not exhibit in competition, being one of the Judges himself. They were very attractive to the visitors.

On visiting the second marquee we found it filled with ladies, who were holding a kind of fancy fair. There was everything to be obtained for love or money, from a basket of baby linen to a wedding ring; but wedding rings are no use without fingers to wear them, and others to put them on the said fingers, "for better or worse." With that we perfectly agree; but we can go no further on this subject than recommend "all those whom it may concern," as the lawyers say, to take their proper credentials with them, and attend flower shows. One young lady, tall, pale, and very interesting, would insist that the representative of The Cottage Gardener was sadly in want of pincushions. She made several furious attacks upon his pocket, and continued the onset with such impetuosity that he began to entertain serious doubts whether he was a wet nurse or a milliner's apprentice. Now, when we say that the gentleman in question is nearly six feet high, some fourteen stone weight, and bearded like a Garibaldi, our readers may judge in what danger he stood under the pincushion fire, so as to doubt whether he had not completely gone out of his veritable existence, and become somebody else, or a third party. However, a lady, seeing his bewilderment, very humanely came to the rescue, and took him across the lawn until he recovered.

The Rifle Volunteer movement has penetrated the arcadia of happy Isleworth, for we saw several fair damsels carrying their lovers in their arms. Indeed, one young bud of promise, apparently just floating out of the smooth river of her "teens," into the sea of womanhood, carried her gallant volunteer in her hand, and amused herself by swinging him to and fro by his sash. We went up to inquire the cause of such horrible brutality, when she very quietly slipped him under her mantle, where she fixed him to something by his waist; then laughing defiantly in our face, she turned on her heel and stepped off. Oh, the ogress! Bouquets were in large demand. Who, with anything beyond his night's lodging in his pocket, could resist purchasing the sweetest of flowers offered by the fairest of hands?

Even during the storm, when the marquee was crowded, the ladies were not idle, for they went about in grand style with their wares, and, let us hope, did a good stroke of business. One young creature, with some slight tinge of the nursery blush upon her pale and velvet cheek, was very active in trying to get up a raffle for a really beautifully-coloured photograph of the "old Judge" himself, which was much admired. She wanted anxiously to put our name down for a 5*s*. chance; but since a certain "disappointment" that a friend of ours has recently "suffered,"

we have declined allowing young ladies to inscribe our patronymic on their lists, for reasons best known to ourselves. Another being in white muslin, sprinkled with what appeared to be the green, scarlet, and gold, of butterfly wings, wearing a golden zone around her waist, employed herself very industriously as a "flying" stationer. Like most of that class who follow such loose, undisciplined occupations, she took to gambling, when she sold off her stock of note paper and envelopes. We were sorry to see her addicted to such propensities, as we *had* expected better things. Leaving her to her own reflections (before a pocket mirror), we again retreated under the care of our "guide, philosopher, friend," who rescued us on the first occasion. There was a weighing chair upon which to seat fat gentlemen of fifty, and ladies who have despairingly relinquished the art and mystery of compressing their lungs by stay machinery, having resigned that healthful (?) amusement in favour of their daughters, who would be very glad if some engine could be invented or discovered by which women could go without waists altogether, and become things of steel and tape, and hooks and eyes, and any horridity that would hide the inimitable outline of their own beautiful forms, strangle their development, and distort them to any monstrosity by which Nature's loveliness in them would be entirely lost.

One of the most amusing features of the place was a post office, where you could go and have a letter delivered through the window on payment of the small sum of 6*d*. Fair maidens went there in plenty. Some good jokes were well played. "Confirmed" bachelors were presented with the loveliest of blue-eyed flaxen-haired daughters, and cradles to put them in, mark that! whilst they, in their turn, retorted by such slight articles as a pair of ———, we forget their name; but the parish beadle who was on duty in the grounds wore a magnificent "turn out" of the same article, in glorious red plush. He was grandly "got up," was the beadle, in blue, gold, and scarlet, not omitting his spotless cravat, and his once equally spotless hose; he was great enough to march before an emperor, and his appearance does that amiable woman, Mrs. Beadle, the highest credit. They should have reserved a prize for the bearer of the parish mace, we are sure he would have won easily.

There was a photographic apparatus on the ground, but the unpropitious state of the weather prevented much patronage.

We directed our attention to the "understandings" of the fair sex, and found them at least as thick in the soles as the back of a dessert-knife! What a blessing for themselves and posterity—their own special posterity—if they would so far allow their feelings to be violated as to wear, in such seasons as the present, a quarter of an inch of leather between the soles of their feet and the mud, wet, and puddle of the streets. But we must not be too fault-finding even for the benefit of their own health, or we may have to answer for it in a way more practical than pleasant.

Great praise is due to all who took part in the day's proceedings, but especially to the ladies, who undertook the duty of engrafting a bazaar on the Flower Show, and presiding at the stalls. Whatever the proceeds may be intended for, we hope the object may be attained.

On Saturday the amusements were continued, and wound by a regatta, to which the Duke of Northumberland contributed £50 as prizes.

Mr. Justice Halliburton was not at home, but Mrs. Halliburton was, and rendered every possible personal assistance. The Committee who organised the proceedings are entitled to all praise.

Two military bands were on the ground—namely, the Isleworth Volunteers and the 3rd Middlesex Militia, under the direction of Mr. Backwell, the bandmaster of the regiment.

MIXING RED LEAD WITH CABBAGE SEED.

In the early part of this season there was something said by two correspondents in The Cottage Gardener on the plan of mixing red lead with Cabbage seed, to prevent birds from taking it. I may have read or heard of the plan before, but gave little attention to it until this season; and can now safely state that the plan is really worthy of notice. The seed before it is sown is readily mixed with the dry red powder in a dish after a little shaking. The operation, of course, should be repeated on each different kind of seed. In my own case, having weak faith in the plan, I did not spare the seed, in consequence of which my seed-beds were too thick of plants. I have the same to observe respecting Radish seed, of which birds are very fond; and though they appeared on the beds, I think that they seldom did so a second time. I need hardly observe that the red lead plan is very simple, and saves much trouble in covering the beds with nets.

While on this subject, I may put in a word in favour of birds, especially of sparrows, which farmers often poison by wholesale, because they are blamed with rooks for injuring their crops. This charge against both is sometimes true; but, on the other hand, the loss is often abundantly made up by the great quantity of grubs and insects they devour, which if let alone might have destroyed whole crops. But sparrows and some other kinds of birds must be kept in bounds, especially in small gardens. Those are often wrongly blamed for eating the buds of Currants and Gooseberries in spring, while the damage is done by bullfinches. When sparrows are hard pressed for food in spring, before caterpillars abound, they will attack the green tops of Peas just above ground; and, if not prevented, may soon destroy a whole crop. —J. Wighton.

THE CULTURE OF THE MELON.

We remember the time full well when a "Rock Melon" was thought much of, and it certainly has a very pretty appearance when weighing seven or eight pounds, and is uniformly rough with warts; but, alas! for its flesh, which, if tolerably well flavoured, is so immensely hard and crisp, as to call forth every exertion on the part of our masticators; and this, added to its very indigestible qualities, allowed few persons to indulge in eating it. But, happily for us, we have now other varieties, melting, soluble, and highly-flavoured, and which are, without doubt, as wholesome as ripe Peaches. We allude here to the various kinds of Green-fleshed Melons, and will now make a few observations on their culture.

No plant luxuriates more than this in a gentle bottom heat, to maintain which is a great secret of success, particularly in cold and ungenial seasons, such as we have recently experienced. There are many modes of management in this respect, some of which we will pass in review.

1st. There is a system of heating by hot-water tanks, which does not find favour in our sight for Melons, except so far that it is safe and regular; but we like to have a bed of good rotten materials for the roots to revel in, when the growth of the plants is much advanced.

2nd. The great objection to the old dung-bed is the uncertainty with which fermenting materials change their temperature, and of getting too warm—a difficulty that happens to most tyros in gardening, and which requires the watchful care of a good gardener to prevent.

3rd. There is another plan of chambering, covering the pits with thin slates upon which the soil rests, and surrounding the pit with a lining of very hot dung. This is an excellent plan for very early work, giving ample command of heat without danger from an excessive bottom temperature.

But, for Melons to ripen in July and August, we like a *bed*, a good thick bed, of leaves, with linings of hot dung. These decaying form a mass in which the roots ramify and enjoy themselves, and from the persistent and gentle warmth produced assist materially in the swelling of the fruit.

In ungenial seasons the cultivator is frequently much perplexed by the damping which takes place at the collar of the plant, and extends in various directions to the foliage. We think it a fundamental error to stop the shoots too soon, and it is one which lays the foundation of canker in the plant afterwards. We also think it important to elevate the plant in planting a little above the surrounding surface, in order that the drainage may be from and not to the stem. We stop our plants after they have grown four joints, and thus secure four shoots, which are trained to the four angles of the light, and form the framework of our plant. These four shoots are stopped when they reach the outside of the frame, and, producing laterals, they furnish the supply of fruit. We limit our crop for one light to four in number, and thus get fine fruit.

We do not hold with the use of much shading for Melons. We believe them to be children of the sun, and to delight in its influence. We would, therefore, never accustom them to artificial shade; believing that by such treatment they will organise tissues capable of bearing the sun's unmitigated influence, and be thereby maintained in the finest health and vigour. Plants, like ourselves, are creatures of habit; if we are screened from every wind we are all rendered liable to disease from the slightest

unusual cold, and so the weak and partially blanched plant shrinks from the same amount of sunshine which makes its hardier companion rejoice.

Ventilation is of much consequence and requires great attention. It should be given a little earlier than actually required, and taken away early in the afternoon. Neglect in this respect often causes injury to the foliage when the early sun comes strongly upon it before it becomes *dry*.

The soil for the Melon should be a strong unctuous loam mixed with a small proportion of rotten dung. It should not be sifted, but merely chopped into moderate-sized lumps. It is important that it should be made firm when put into the frame, and for this it should be well trodden in.

An important improvement has been made in the flavour of the Scarlet-fleshed Melon, as exemplified in *Turner's Scarlet Gem* Melon, the very best Scarlet-fleshed extant. But still we think this inferior to the Green-fleshed kinds. We much prefer the gelatinous flesh of the one which one can eat with a spoon, to the hard substance of the other, however piquant its flavour, requiring the knife.

Like all other good fruits, the Melon is not exempt from insect enemies. The red spider and the woodlouse are its worst depredators. The ravages of the former are too well known to need description; and the latter, although not an omnipresent marauder, is a very general intruder, eating holes into the finest and best of the fruit, and thus blasting the hopes of the cultivator just at the point of consummation.

Every process which induces luxuriance is inimical to insect life; and it is a fact requiring little observation, that those plants whose growth is weakly are always more or less a prey to insects. In the case of red spider syringing is a capital remedy, and we recommend its almost constant practice as a great promoter of growth, and a powerful deterrer of insects.

We have hinted at the advantages of getting a general and continuous heat for Melons. Our mode of doing this is by accumulating a large body of Oak and Beech leaves in a pit five feet in depth. The bed is built two feet six inches above the surface, making its total depth seven feet six inches. Such a bed will keep a moderate heat very often for two years. By the use of dung for beds you get a very great heat at first, which subsides into perfect coldness and rottenness. But the leaves heat less violently at first, and are much more enduring. They are, therefore, the most preferable material for hotbeds where plentiful. Nor must we forget the invaluable residuum which they yield when decayed in the shape of leaf mould—one of the most valuable and important soils which the gardener employs.

Let our friends of The Cottage Gardener remember to cherish their leaves, and save them on all occasions for furnishing mould for potting their various plants, and mixing in with other composts. H. Bailey, *Nuneham*.

TOBACCO-PAPER A REMEDY AGAINST GREEN FLY ON CUCUMBERS AND MELONS.

Observing in your periodical of the 5th ult. that an "Irish Subscriber" recommends fumigation for the destruction of the green fly, which often infests Cucumbers and Melons, I may here state that I have tried it a few years ago; but, to my surprise and loss, soon found my plants dead; the smoking, I conjecture, being too powerful for them.

I have since discovered a milder remedy, which is to place tobacco-paper in layers beneath the leaves. This has such an effect upon the insects above, that it causes instant death, and, as a consequence, a relief to the plant of this nuisance.—Tudor.

IS THE PROFESSION OF A GARDENER A HEALTHY ONE?

Were I to ask the question of twenty individuals whether they considered the profession of a gardener conducive to health and longevity, the reply of nineteen would be undoubtedly an unqualified affirmative; and, therefore, it is a somewhat bold step for a non-medical man to take to presume to question the decided opinion of so vast a majority; but whether it may be that my experience—which certainly has not been very extensive—has been unfortunate, or my observations not very astute, I certainly have for some time felt a strong conviction that the popular opinion as to immunity from disease and suffering generally attributed to the delightful and interesting profession of horticultural pursuits, has at all events been overrated.

Now, I should be very sorry indeed to discourage the young gardener when about to enter the ranks of the "blue aprons," as our valued and humorous friend Mr. Beaton has designated the craft; but I could earnestly warn him from depending too much upon the popular notion that disease and sickness are enemies unknown to the man whose employment is almost wholly out of doors when he imbibes the genial and fresh breezes as they fan the leaves and waft the perfume of his favourite Rose, scattering the refreshing fragrance of the Mignonette and Sweet Brier to every secluded nook of his neat parterre. What I wish to impress upon him is not to defer taking wise precautionary means to insure him assistance in case of sickness, and means of interment at his decease without pressing upon his friends, who may probably be unable or unwilling to aid when such aid is indispensable, and from seeking which every honest and right-minded gardener would instinctively shrink with feelings of abhorrence.

To support my opinion I might mention the cases of ill health of gardeners which have come under my own more immediate notice. One, a man of robust and powerful frame, has been twice laid by for a considerable period in consequence of attacks of acute rheumatism, induced, as his medical men tell him, by sudden exposure to the cold after working in the vinery. Another that I knew well has been compelled to quit the employment altogether from inflammation on the lungs, entirely arising from the same cause. A third has been cut off in the very prime and vigour of life by typhus fever; and the fourth, my own valued and regretted gardener, who has just been consigned to the tomb, aged 40 years, after nearly twelve months of total deprivation of speech, and the entire loss of the use of one side through paralysis, brought on, I believe, from working in the hot sun, being a man of full habit of body. His case, indeed, was melancholy and impressive—one day in robust health and strength, and on the next speechless and hopelessly crippled, though retaining full possession of his other faculties, thus presenting one of the most sad and distressing instances of the uncertainty of human stability I have ever known. Happily for him, he was a member of a respectable provident society, which paid him 10*s*. per week during his long illness—an illness the monotony of which was only relieved by his sitting at his bedroom window watching, no doubt with melancholy interest, the work of his successor cultivating the ground and superintending the plants and flowers which had long been his pride and pleasure. If of any man's health and longevity I could have been almost morally certain, surely it was his.

Such is my experience of the few gardeners whom I have best known; and surely there is enough in their history to arrest the attention of the most careless, and to bid him ask himself when sickness should come, "Am I prepared both spiritually and temporally to meet its attacks?" I would strongly recommend all gardeners, if possible, to avoid all friendly societies which are held at public houses—those wretched establishments, the bane and ruin of half the artizans of the British empire. I have now before me the annual statement of a society which is in its twenty-fourth year, and has a balance in hand of upwards of £4000, the success of which is, I believe, principally attributable to the fact, that one of its chief rules is, "on no account shall any meeting be held at a public house." It was commenced by the clergyman of this parish, and is worthy of imitation by all incumbents of livings—good rules, safe calculations, and trustworthy officers being the only requisites for its success and stability.—The Cottage Gardener's Friend.

[We commend this to the attention of our readers, not only because it contains the thoughts of one who is wise both for time and eternity, but because the thoughts are upon truths which every gardener should regard and obey.

We do not think that the occupation of a gardener is unhealthy, though carelessness may render it productive of acute diseases. It certainly does not shorten life—Parkinson lived about 78 years; Switzer, 80; Bobart, 85; Knowlton, gardener to Lord Burlington, 90; Miller, 80; Speechly, 86; James Dickson, 89; and Abercrombie, 80. Nor are these the exceptions; for if we refer to the lists of candidates for the pensions of the Gardeners' Benevolent Society we shall rarely find one of those candidates of a less age than 65, and a majority of them 70 and upwards. This usual length of life is an additional argument enforcing the wisdom of our correspondent's recommendation to provide for "the comforts of old age." There are in old age

many years when the "good heart and willing hand" lack the power to be effective; and then how welcome is the weekly allowance from the friendly society.

We have said that gardeners may become unhealthy through carelessness, and in this we speak advisedly; for very rarely is there an imperative necessity to rush from the stove into an exposure to cold air; never is there any need to train trees in bitterly cold weather; and quite as needless is it for a coat or waistcoat to be thrown on to the damp soil or grass to be resumed wet when the toil is over. Such recklessness is courting the attack of rheumatism.—Eds. C. G.]

PLANTING PEACH TREES AGAINST A WALL.

PEACH TREES FAILING—EFFECTS OF LAST WINTER.

In a late number, in his very excellent "Gleanings from Kimpton Hoo," Mr. Fish describes the Peach-wall being filled by riders and dwarfs, saying that had he a new wall to fill he would follow this plan, and keep the trees small. Now, I shall be much obliged if he will say at what distance each rider is to be placed, and if one or two dwarfs are to be between them. My wall is 12 feet high.—Greenhorn.

[In answer we reply that the Peach-wall at Kimpton Hoo is 9 feet in height, and without coping of any kind. The standards, or riders, are planted 18 feet apart. If the wall were higher, Mr. Cox would plant them closer in proportion. One dwarf is placed between each two riders, and consequently also 18 feet from dwarf to dwarf. In some cases the dwarfs reach the top of the wall between the riders—that is, the central part of the tree; but Mr. Cox prefers keeping both standards and riders so much at home by pruning that both together shall cover the wall. The means of protecting have already been referred to; and the wall is well supplied with fruit and fine wood for the whole of its length. We have, also, already mentioned that the position is low and warm, near water, and therefore liable to the effects of autumn and spring frosts, and yet the trees have escaped all injury; whilst others, and our own among the rest, have suffered severely, if not irremediably.

I had a fine, full crop of fruit last season, and the wood for this season seemed everything in October that could be desired. Then came the warm nights—temperature averaging 60°—which caused the trees to make fresh growth, and to be charged to repletion with juices. When the sudden and severe frosts seized them I was apprehensive all the winter that the trees would suffer severely, as I detected many blotches and cracks that the frost had made. In cutting in spring care was taken to get rid of the worst parts, and the blossom came finer and bolder than I expected. The fruit set thickly, and the trees seemed as if they would get over it so well that I saw no hazard in disbudding, and all went on pretty well until that terrible stormy Saturday, which almost completely cleared the trees of foliage; and their old wood, and young wood too, became blotched with canker and gum, and kept fading and dying off. Even as to the wood yet alive, and set thick with fruit, I question if enough of healthy wood will be made to swell the fruit off of a good size and flavour; and I fear that the greatest care will fail to render the trees at all symmetrical so as to fill the wall again. Now, in the case of small trees, it would be an easier matter in warm autumns to arrest mere growth by exposing or cutting the roots, as well as by lessening the leaf surface, so that when severe frost came it would not find young shoots gorged with sap to rupture and split the sap vessels; and if some did suffer greatly, the space would be more easily filled up.

The most careful will be caught at times, and we fear that few could attend to everything in that terrible night of October, when the thermometer so suddenly sunk some 40°, and gave us the almost instantaneous transition from midsummer to midwinter. The storms this season were bad enough, but this frost in October I believe to have been the primary cause of this and many similar disasters.

As one evidence of this I may mention that a part of the same wall had been improvised into a temporary orchard-house by placing some spare sashes against it, and these were not removed until November. The trees on this part were therefore so far protected from that first terrible frost. I must also mention that the same trees had the sashes placed against them before that stormy Saturday. Partly on both accounts, but chiefly owing to the protection in October, I imagine, these trees have continued to grow pretty freely, and have not lost their leaves, nor cankered, nor gummed, like those on the open wall.

All these considerations lead to the importance of covering all such trees with glass in exposed places in our now uncertain climate. Even in a profit point of view there can be no comparison as to the advantages of a Peach-house when contrasted with the open wall; and in a house it is as easy to retard as to advance the time of ripening, and thus the season of such fruit is greatly prolonged.

Peaches were not the only things that suffered from the frost. Previously, for many a year, I hardly ever knew what it was to lose a Dahlia root, and that simply by placing earth or litter over their crowns. In the bustle of the previous afternoon, which showed signs of what was coming, Dahlias were left, and I did so because I had never known them greatly injured by the first night's frost. However, though the roots in the ground were safe enough, a great portion of the buds or crowns were irremediably injured.

As bearing on the same subject, and also as showing that such early frost is ruinous in proportion to the vigour of growth at the time, and, consequently, to the suddenness with which it comes in severity, I may mention that I lost almost entirely my earliest quarter of Cabbages, and managed to secure a fine second quarter, more from necessity and accident than purpose or design. As the ground for this successional supply could not be got ready in time, the young plants were pricked out a few inches apart on a border, and when transferred to the quarter had not begun to take to their new quarters before the frost came. In other words, instead of being green, succulent, and growing freely, they were rather welted and drooping in their appearance; and through the winter, though they just kept their place, they gave little promise of the fine yield they afterwards produced, as they grew with great rapidity as soon as the days lengthened and became a little warm. In looking at some of the cottage gardens in winter, I almost envied them their nice green-looking plants, but these yellow-welted things, planted so late, beat them hollow before cutting time. But for this late planting I should have had to wait for Cabbages from seed sown in a hotbed and hardened off, which many others have had to do this season.

On the same principle, I believe that if there should be a likelihood of severe early frosts coming so quickly on the heels of warm summer weather, means will have to be taken in many places to arrest the growth of Peach trees against open walls, before such frost assails them. If such operations should be necessary, then comparatively small trees, with the branches at no great distance from the main stem, will be more easily operated upon, and regulated according to their requirements and circumstances. So many Peach trees have suffered in the country this season, that the subject is well worth ventilating. Failures, rightly regarded, ought to be as instructive as instances of success. Without permission, it would be unfair to mention instances where the trees have suffered greatly. There can be no impropriety in stating, that those under my care on the open wall are by no means what I would wish them to be. I know cases in which, under different gardeners, the Peach trees on the open wall never fail and hardly ever get unhealthy. I know of other cases in which different and first-rate gardeners fail to succeed in growing them, though succeeding admirably under glass. What can be the chief reasons?—R. Fish.]

THE SCIENCE OF GARDENING.

(*Continued from page* 215.)

THE FLOWER.

The organs of fructification are absolutely necessary, and are always producible by garden plants properly cultivated. They may be deficient in leaves, stems, or roots, because other organs may supply their places; but plants are never incapable of bearing flowers and seeds, for without these they can never fully attain the object of their creation—the increase of their species.

Every flower is composed of one or more of the following parts—viz., the calyx, which is usually green and enveloping the flower whilst in the bud; the corolla or petals, leaves so beautifully coloured, and so delicate in most flowers; the stamens, or male portion of the flower secreting the pollen, or impregnating powder; the pistils, or female portion, impregnatable by the pollen, and rendering fertile the seeds; and lastly, the pericarp or seed-vessel.

Their organisation closely resembles that of the branch by which they are borne, and they are only its parts taking other forms. "Tracing," says the late Mr. Knight, "the progress of the organisation in the full grown fruits of the Apple and Pear, I found, as Linnæus has described, that the medulla, or pith, appeared to end in the pistils. The central vessels diverged round the core, and approaching each other again in the eye of the fruit, seemed to end in ten points at the base of the stamens, to which, I believe, they give existence. The spiral tubes, which are, in all other parts, appendages to these vessels, I could not trace beyond the commencement of the core; but as the vessels themselves extend through the whole fruit, it is probable that the spiral tubes may have escaped my observation."

Although the medulla is traced to the base of the pistils, the central vessels to the part enveloping the seed, and to the stamens, and the spiral vessels throughout the fruit, yet over every part is extended the parenchyma and epidermis, and the sap circulates through the entire of the flower and fruit,—ascending, being elaborated, and descending,—as regularly as through other parts of the plant. Coloured infusions may be traced through the vessels in the stem to the fruit, and if a ligature be passed round a Peach or an Apple, the enlargement is greatest above—that is, between the ligature and the footstalk; and Mr. Knight succeeded, by intergrafting, in proving that the leafstalk, the tendril of the Vine, the fruitstalk, and the succulent point of the annual shoot, may be substituted for each other,—a bunch of Grapes grew and ripened when grafted upon the leafstalk; and a succulent young shoot of the Vine, under the same circumstances, acquired a growth of many feet.

The stamens can be removed without preventing the formation of fertile seed; but their loss must be supplied by the introduction to the pistils of pollen from some kindred flower.

The calyx is not useless so soon as it ceases to envelope and protect the flower, for the flowerstalk continues increasing in size until the seed is perfected, but ceases to do so in those plants whose calyces remain long green if these be removed. On the other hand, in the Poppy, and other flowers from which the calyx falls early, the flowerstalk does not subsequently enlarge.

The corolla, or petals, with all their varied tints and perfumes, have more important offices to perform than thus to delight the senses of mankind. Those bright colours and their perfumed honey serve to attract insects, which are the chief, and often essential, assistants of impregnation; and those petals, as observed by Linnæus, serve as wings, giving a motion, assisting to effect the same important process. But they have a still more essential office; for although they are absent from some plants, yet, in many plants, if removed from those possessing them before impregnation is completed, the fertilisation never takes place. They, therefore, perform in such cases an essential part in the vegetable economy; and that they do so is testified by all the phenomena they exhibit. They turn to the sun, open only when it has a certain degree of power, and close at the setting of that luminary; their secretions are usually more odorous, more saccharine, and totally differing from those of the other organs of plants; and in the absence of light those secretions are not formed.

The corolla is absent in some plants, the Willow for example. But where it exists it is not always short-lived; for although in some, as the Cistus, the petals which open with the rising sun strew the border as it departs; so some, far from being ephemeral, continue until the fruit is perfected. The duration of the petals, however, is intimately connected with the impregnation of the seed, for in most flowers they fade soon after this is completed; and double flowers, in which it occurs not at all, are always longer enduring than single flowers of the same species. Then, again, in some flowers they become green, and perform the functions of leaves after impregnation has been effected. A familiar example occurs in the Christmas Rose (*Helleborus niger*), the petals of which are white, but which become green so soon as the seeds have somewhat increased in size, and the stamens and other organs connected with fertility have fallen off.

It is quite true that some fruit will not ripen if the part of the branch beyond is denuded of leaves; but this only shews that those fruits cannot advance when deprived of leaves as well as of calyx and corolla,—the only organs for elaborating the sap; and there are some flowers, as the *Daphne mezereon*, autumn Crocus, and Sloe, that have their flowers perfected and passed away before the leaves have even appeared.

That the petals in most plants perform an important part in elaborating the sap supplied to the fruit, is further proved by the flower being unable to bloom or to be fertile in an atmosphere deprived of its oxygen; and by their absorbing more of that gas, and evolving more carbonic acid than even a larger surface of leaves of the same plant.

So essential is oxygen to the fertility of a flower, that, as we shall hereafter have occasion to state, the stamens of one plant absorb two hundred times their bulk of the gas at the time of impregnation; and Saussure found that double, or unfertile flowers, do not absorb so much oxygen as those which are productive. The following table shows the number of volumes of this gas inspired by one volume of the flowers and leaves:—

	By the flowers.	By the leaves.
Mathiola incana (Queen's Stock), 6 P.M.	11·0	4·0
Ditto double-flowered	7·7	
Polyanthes tuberosa (Tuberose), 9 A.M.	9·0	3·0
Ditto double-flowered	7·4	
Tropæolum majus (Common Nasturtium), 9 A.M.	8·5	8·3
Ditto double-flowered	7·25	
Brugmansia suaveolens, 10 A.M.	9·0	5·0
Passiflora serratifolia, 8 A.M.	18·5	5·25
Daucus carota (Carrot), 6 P.M.	8·8	7·3
Hibiscus speciosus, 7 A.M.	8·7	5·1
Hypericum calicinum, 8 A.M.	7·5	7·5
Cucurbita melo-pepo (Pompion), male flowers, 7 A.M.	12·0	6·7
Ditto female ditto, 7 A.M.	3·5	
Lilium candidum (White Lily), 11 A.M.	5·0	2·5
Typha latifolia (Cat's-tail), 9 A.M	9·8	4·25
Castanea vesca (Chestnut), 4 P.M.	9·1	8·1

As the flowers inhale more oxygen than the leaves, so do they exhale more carbonic acid than these organs; and, unlike leaves, they pour it forth not only during the night, but in the sunlight—at least, Dr. Priestley, Dr. Ingenhouz, and M. Saussure found this was done by the Rose, Marigold, and Honeysuckle.

It is upon the oxygen combined with their parenchyma that the colour of a petal depends; for sulphurous acid (the fume arising from a burning match), which has a most powerful affinity for oxygen, destroys the hue of all coloured flowers, though it leaves that of white flowers unchanged. Mr. Smithson's experiments, and those of M. Schubler, seem to indicate that the colouring matter of flowers and fruits is fundamentally blue—rendered red by acids or the addition of oxygen, or yellow by the presence of an alkali or the subtraction of oxygen. Mr. Smithson says, that the colouring matter of the Violet is the same in the ruddy tips of the Daisy, Geranium, blue Hyacinth, Hollyhock, Lavender, and various Plums, in the leaves of the Red Cabbage, and in the rind of the salmon Radish. The acid which causes the red tint seems to be usually the carbonic.

M. De Candolle refers to a *memoire* of MM. Schubler and Funk on the colours of flowers, which they divide into two grand series corresponding to the two grand types of vegetable colour—yellow passing into red and white, but never into blue; and blue passing into red and white, but never into yellow. The former they call oxidated colours, the latter de-oxidated colours—green being the point of equilibrium between the two series. In the process of oxidation you have yellow-green, yellow, orange-yellow, orange, orange-red, red. In the process of de-oxidation you have green-blue, blue, violet-blue, violet, violet-red, red. To avoid the hypothesis of oxidation and de-oxidation, De Candolle denominates the two series the *xanthique* and *cyanique*, indicative merely of the blue and yellow types. In the xanthic series we find Cactus, Mesembryanthemum, Aloe, Cytisus, Oxalis, Rosa, Verbascum, &c. In the cyanic series we find Campanula, Phlox, Epilobium, Vinca, Scilla, Hyacinthus, &c.

White is excluded from either series, because it is thought to be doubtful whether it exists naturally in a pure state among vegetables. We do not see the ground of all this distrust, says Mr. Keith; why is not white to be called white? Surely the corolla of *Lilium candidum* is a very good example of the colour in question. The following changes of colour in quick succession are worthy of notice. The flower of *Hibiscus mutabilis* bursts open its integuments in the morning. Its corolla is then white; at mid-day it is flesh-coloured; at sunset it is red.

Black is also excluded with more apparent propriety, and yet it is to be found in the petals of some few flowers. *Pelargonium tricolor* and *Vicia Faba* will furnish examples.

The infusion of vegetable reds in alcohol takes a deeper tinge by the addition of an acid, but gives no uniform result by the addition of an alkali. The infusion of vegetable yellows is discoloured by the addition of an acid, but rendered more intense by the addition of an alkali. The infusion of vegetable blues is rendered red by the addition of acids, and green by the addition of alkalies—furnishing the well-known chemical test.

From what has been said, it follows, according to De Candolle, that the modifications of the *chromule*, occasioned by the degree of its oxidation, are the cause of the diversity of colours in the appendages of plants at least—that is, in the leaves, or modification of leaves, whether spathe, bract, calyx, or corolla. The degree of oxidation proper to leaves produces green; a higher degree leads to yellow and red; a lower degree to blue.—J.

(*To be continued.*)

BRITISH POMOLOGICAL SOCIETY.

A meeting of the British Pomological Society was held at Hanover Square Rooms on Thursday, the 5th inst.; Robert Hogg, Esq., V.P., in the chair.

At this Meeting prizes were offered for the best Seedling Strawberry, and for the best collection of already-known kinds. For the seedling prize, Mr. Willis Reeve, of Rochford, sent a dish of his seedling *Eclipse*, raised from *Keens' Seedling* crossed with *Myatt's Surprise*. It was not found to possess sufficient merit; and Mr. Reeve stated that his soil, which is stiff clay, is most unfavourable to the growth of Strawberries; but that this variety, when forced in pots and grown in soil which is suitable, possesses a strong pine flavour, and is a most abundant bearer.

Mr. Myatt, of Deptford, sent two Seedlings, Nos. 14 and 15, neither of which were sufficiently ripe to enable the Meeting to form a correct judgment of their merits. No. 15 is a very promising variety, and Mr. Myatt was requested to bring it forward again at the next Meeting.

Mr. S. Ford, of Horsham, was the only exhibitor for the collection of Strawberries, and received a second prize for *Myatt's Eliza*, *Keens' Seedling*, *Viscomtesse Herioart de Thury*, *Princess Alice Maud*, and *Black Prince*.

Mr. Ford also exhibited an Apple called *Old Wife*, which, however, had lost its flavour, although the fruit was in excellent keeping condition.

The Floral Magazine.—Since our former notice two more parts of the "Floral Magazine," under the editorship of Mr. Moore, have made their appearance, and in them the same ability and taste are displayed which characterised the first part. As a portrait gallery of strictly ornamental flowers, this is the most worthy of the name which has yet appeared; and whether as a book of instruction or of pictorial interest we know of none better.

TO CORRESPONDENTS.

Lists of a Few Superior Florists' Flowers (*R. L. G.*).—The following selections will answer your purpose admirably. They are selected for their good qualities, not because they are new or expensive, but such as will when well grown please any cultivator. *Six Azaleas.*—Alba magna, Criterion, Iveryana, Perryana, Gem, Rosy Circle. *Six Camellias.*—Alba plena, Bruceana, Countess of Orkney, Eximia, Imbricata, Marchioness of Exeter. *Six Roses for Pot Culture.*—General Allard, Coup d'Hebe, Devoniensis, Général Jacqueminot, Gloire de Dijon, Viscomtesse de Cases. *Twelve Dahlias.*—Beauty of Bath, Lord Palmerston, Sidney Herbert, Lady Franklin, Annie Salter, Duke of Devonshire, Lady Bathurst, Queen of Whites, Royal Scarlet, Henrietta, Jenny Lind, Sir John Franklin. *Eighteen Fuchsias.*—British Sailor, Catherine Hayes, Chancellor, Crown Jewel, Eclat, Estelle, Glory of Stoke, La Crinoline, Little Dorrit, Magic Flute, Marquis of Bath, Lord Clyde, Princess of Prussia, Premier, Queen of the Sea, Rose of Castille, Sir Colin Campbell, Wiltshire Lass. *Eighteen Pelargoniums.—Large:* Admirable, Belle of the Season, Blink Bonny (Foster's), Bride, Pride of the West, Criterion, Duchess of Marlborough, Empress Eugenie, Fairest of the Fair, Fire Queen, Governor General, Hyperion, King of Searlets, the Belle. *Spotted:* Conspicuum, Edward Henderson, William Bull, Virginie Miellez. *Six Fancy Pelargoniums.*—Clara Novello, Decision, Crimson Pet, Madame Rougier, Princess Royal, Sir Joseph Paxton.

Chrysanthemums (*P. W.*).—*Cedo Nulli* is a first rate Pompone. *Annie Salter* is as good in the older kinds. The rest are second rate Pompones. None of them ever bloomed or could be made to bloom at the end of August, nor yet at the end of September; but by the 20th of October *Daphnis* will probably be in bloom, and the rest will follow if you stop them all for the last time this season between the 15th and 20th of July, except *Annie Salter*, which, unless her legs were very long indeed, we would never stop after the 10th of July; and in such a late season as this, not later than the 1st of July.

Caladium Chanothi (*H. Marshall*).—Caladiums, Arums, Colocasias, and all other Arad plants never had flowers as we call them—they want the floral envelopes, the calyx and corolla. Your plant is probably producing a flower-head which is called a spathe; their naked flowers sit round and round on an axil called a spadix; and the broad blade which folds round them is called the hood. A hooded spathe is their family coat of arms, and good gardeners can keep the pots in saucers of water from May to October; but that is a dangerous plan for those who are not well versed in the culture of plants. Therefore writers who are teaching the art of cultivation never recommend that plan, although they all adopt it.

Pansy Culture (*D. Browne*).—A treatise such as you require will appear in our columns ere long.

Calceolarias (*H. Major*).—Your seedling Calceolarias are particularly good and well marked this year; and being of the half-shrubby kinds, and, therefore, more easily managed in winter, we recommend them to public notice.

Preserving Green Peas, Gooseberries, &c. (*Tyro*).—The following is extracted from M. Appert's publication on the subject:—"The details of the process consist principally—1st. In enclosing in bottles the substances to be preserved. 2nd. In corking the bottles with the utmost care; for it is chiefly on the corking that the success of the process depends. 3rd. In submitting these enclosed substances to the action of boiling water, in a water-bath, for a greater or less length of time, according to their nature, and in the manner pointed out with respect to each several kind of substance. 4th. In withdrawing the bottles from the water-bath at the period described." As an example of his practice, we give his method of preserving Dwarf Kidney Beans. "I cause the Beans to be gathered as for ordinary use. I string them, and put them in bottles, taking care to shake them on the stool, to fill the vacancies in the bottles. I then cork the bottles and put them in the water-bath, which is to boil an hour and a half. When the Beans are rather large, I cut them lengthways into two or three pieces, and then they do not require being in the water-bath longer than one hour." When they are to be used he gives the following instructions:—"Scald the French Beans as if they were fresh, in water, with a little salt, when not sufficiently dressed by the preserving process. This often happens to them as well as to Artichokes, Asparagus, and Cauliflowers. If sufficiently boiled, on being taken out of the bottles, I have only to wash them in hot water, in order to prepare them afterwards for vegetable or meat soup." This author furnishes several recipes for other vegetables, all of which are on the bottling principle; but there is another process, which consists in evaporating the watery parts of vegetables and preserving them dry. We recollect, some eighteen years ago, receiving from Hamburgh or Holland, we forget which, a few packages of Sugar Peas, Kidney Beans, and other vegetables, in this dried state, which, when cooked, were as well-flavoured as they would have been in the green state. These, we believe, were obtained by drying in chambers through which currents of heated air were introduced; they were completely dried and shrivelled up, and had the appearance of strips of thick parchment or leather, until they were boiled, and then they swelled out to their usual dimensions. We have also seen Kidney Beans preserved by first boiling them tender, and afterwards drying them in a warm, airy place, when they may be kept for any length of time in bags or boxes, till ready for use. This drying process may be applied to Peas, Beans, Kidney Beans, Cabbages, Cauliflowers, Spinach, Beet, Parsnips, Carrots, Potatoes, &c., the latter being cut in slices. We are glad of this opportunity of bringing before our readers a subject which is of no small importance in these days of wars and emigration, when food, and particularly vegetable food, is so greatly desiderated; and we do so also in the hope that it may induce them to communicate to us any information they may possess which may be made useful to others.

Carpet Sweeping (*S. M. H.*).—We never heard of a machine for this purpose.

Geranium Culture (*A Novice in Gardening*).—If you require a treatise immediately, buy "Florists' Flowers for the Many," published at our office, price sixpence. A series of papers will appear on the subject in our columns shortly.

Heating a Conservatory (*A Subscriber, Isle of Wight*).—As it is connected with your drawing-room, we recommend you to employ hot-water. The outlay in the first instance is rather more than for a flue, but it is less liable to disagreeable fumes, and more neat in appearance. The expense for fuel is much the same.

Melon Culture (*A. B.*).—There is no modern treatise on Melon culture. If you admit air freely, the plants do not need shading. You may now water and otherwise treat them just the same as Cucumbers. See what Mr. Bailey says to-day.

Removing Greenhouses, &c. (*T. R.*).—You may remove all the parts not attached to the freehold. You may take away the sashes and doors; but, although a nurseryman, you must not remove the flues, nor seed-shops built of stone, although you took them at a valuation from your predecessor, unless he had an agreement with the landlord permitting their removal. If he had no such agreement, you paid your predecessor for what he had no right to sell.

Work on Landscape Drawing (*A Young Gardener*). — Barnard's "Theory and Practice of Landscape Painting," is an excellent and beautiful volume. It was published by Messrs. Orr & Co., but now is only to be met with second hand; price ten or twelve shillings.

Name of Orchid (*A. B.*).—It is impossible to name such a small flattened bit of an Orchid. You should at least have sent some description of the pseudo-bulbs and the habit of flowering; also if imported, and where from. Does it flower in long spikes with branches? or does it produce its blooms singly? As far as we can judge, it is one of the numerous small-flowered Epidendrums that are often imported from South America, and thrown away as worthless even to a curious botanist. If it produces abundance of flowers on a long branched spike it may be an Oncidium, and worthy of culture. Send us in a box, packed in damp moss, the entire spike, and add description, as mentioned above, and then we will gladly determine the name, if possible.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

July 19th. Prescot. *Sec.*, Mr. J. Beesley. Entries close July 7.

August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 5th. Keighley Agricultural Show. *Sec.*, R. Fawcett. Entries close August 29th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

DRIFFIELD POULTRY SHOW.

Although held on the same day as the Exhibition at Sheffield, June 29th, the number of pens exhibited were more numerous than on any former occasion. Altogether the birds were good specimens.

Judges.—J. O. Jolly, Esq., Acomb Grange, York, and J. H. Smith, Esq., Skelton Grange, York. The following were their awards:—

Spanish.—First and Second, W. Cannan, Bradford. *Cock.*—Prize, T. T. Pierson, Bridlington.

Dorkings.—First, H. W. B. Berwick, York. Second, Mrs. Dawson, Poundsw. *Cock.*—Prize, Mrs. Sterriker, Watton.

Game (Black-breasted and other Reds).—First and Second, H. Adams, Beverley. *Cock.*—Prize, H. Adams, Beverley.

Game (Duckwing and other Greys).—First, Mrs. Langdale, Leckonfield. Second, H. Adams, Beverley. *Cock.*—Prize, Mrs. Langdale, Leckonfield.

Game (any other variety).—First, M. Bateson, Beverley. Second, H. Adams, Beverley. *Cock.*—Prize, Mrs. Tate, Driffield.

Hamburgh (Golden-spangled).—First, H. W. B. Berwick, York. Second, R. Tate, Driffield. *Cock.*—Prize, H. Adams, Beverley.

Hamburgh (Silver-spangled).—First, Miss Tate, Driffield. Second, H. Adams, Beverley. *Cock.*—Prize, Miss Tate, Driffield.

Hamburgh (Golden-pencilled).—First, G. S. Simpson, Hunmanby. Second, W. Cannan, Bradford. *Cock.*—Prize, Miss Tate, Driffield.

Hamburgh (Silver-pencilled).—First, W. Cannan, Bradford. Second, G. Robson, Hull. *Cock.*—Prize, R. Tate, Driffield.

Cochin-China.—First, W. Cannan, Bradford. Second, G. S. Simpson, Hunmanby. *Cock.*—Prize, J. Robson, Arram.

Bantams (Game).—First, R. Smith, Hull. Second, T. Simpson, Beverley. *Cock.*—Prize, Miss Turner, Beverley.

Bantams (any other variety).—First, Miss Tate, Driffield. Second, W. H. Chaffer, Hull. *Cock.*—Prize, Miss Tate, Driffield.

Any other Pure or Distinct Breed not Previously Classed.—First, G. R. Tate, Driffield. Second, R. Smith, Norton. *Cock.*—Prize, W. Burcombe, Fimber Street.

Farmyard Cross.—First, Miss Dickins, Leckonfield. Second, G. W. Langdale, Leckonfield. *Cock.*—Prize, T. Tate, Driffield.

Turkeys.—First, Mrs. T. Dawson, Driffield. Second, T. Tate, Driffield.

Geese.—First, Mrs. Moore, Burn Butts. Second, T. Tate, Driffield.

Ducks (Aylesbury).—First and Second, R. Tate, Driffield.

Ducks (Rouen).—First, Mrs. Charter, Driffield. Second, R. Tate, Driffield.

Ducks (any other variety).—First, W. Witty, King's Mill. Second, R. Tate, Driffield.

Ducklings.—Prize, R. Tate, Driffield.

Pigeons.—*Carriers.*—Prize, G. Robson, Hull. *Powters.*—Prize, G. Robson, Hull. *Tumblers.*—Prize, D. Barker, Hull. *Jacobins.*—Prize, T. Ellrington, Woodmansey. *Fantails.*—Prize, G. Robson, Hull. *Trumpeters.*—Prize, H. Key, Beverley. *Any other variety.*—Prize, Mrs. Tate.

Rabbits.—Prize, J. Anderson, New Malton.

Sweepstakes for Game Cocks.—First, S. Holmes, Beverley. Second, H. Adams, Beverley. Third, J. Woodhouse, Bempton.

Extra Stock.—First, W. Leason, Driffield. Second, Mrs. Moore, Burn Butts.

FEEDING FOWLS.

Permit me to reply to inquiring correspondents if chickens as well as Ducks may not be trained to feed apart from the homestead, as noticed by me in that paper of June 12th, in a paragraph on "Destroying Slugs."

The whole of the tenants of the poultry-yard are as easily trained to feed at a distance, and where one pleases, with as good success as in the case of feeding Ducks, provided they are attended to regularly; but the reason this was not explained in the former communication was, that the destruction of slugs only then commanded especial attention. Other fowls, however, are as equally useful for clearing off insects peculiar to their taste, and as handy to be fed at a distance from home as Ducks are, and where they are much more healthy than when confined, moping unnaturally in a dirty yard.

I would repeat, that not only Ducks, but all my poultry at this time of the year, never fail to meet me in the morning to be fed, where I please, at any reasonable distance—say, one, two, or three fields off home, following me with pleasing docility, picking up the few grains of corn I choose to drop on my way, till I come to where I wish them to frequent during the day time, where I sow broadcast all over a fallowed field, or amongst crops where they are likely to do most good, by destroying insects, &c., as much offal corn as they will require for the whole day, but not so much as they would eat, and then abruptly leave them to seek for it; and other food they choose as an accompaniment. If water is not at hand, a small drinking fountain, value 6*d.*, is provided, filled with pure water, charged afresh every day, and placed for their encouragement in the middle of the spot where they are required to frequent. At night I recall them home, and feed them well, but avoiding all waste, give only a sufficient quantity for the night, in the fowl-house (which is well ventilated, and kept clean, and the droppings preserved in a tub, which is a capital substitute for guano), where they seldom are found absent, or myself caught napping.

Of course, when corn or fruit becomes ripe, I keep them confined or within bounds till after the harvest; then they are permitted to ramble again, when they require but little feeding till they are shut up for fattening.—Abraham Hardy, *Seedgrower and Merchant, Maldon.*

SHEFFIELD POULTRY EXHIBITION.

This was the fourth Exhibition of a similar nature that has taken place in Sheffield, and, undoubtedly, the poultry exhibited was of a far superior character than heretofore. The weather on the day of opening to the public was a most fearful one, however—enough to damp the spirits of any Committee, being one hopeless continuous rain *all the day long;* consequently very few indeed were the numbers of those amateurs who braved its inclemencies simply to satisfy their curiosity for poultry. It is very gratifying to state that the following days brought forward a most satisfactory number of visitors, the weather proving quite changed, and the love of poultry evidently remaining undiminished in this locality. The Committee were persevering in their endeavours to gratify the public, bands of music were engaged, and Norfolk Park bore full testimony to a general holiday. The pens used were Turner's, of Sheffield, which are, undoubtedly, the best to be met with. The whole of the coops were placed under wooden sheddings, which formed three sides of a square, and the effect was a good one.

Spanish fowls stood first, and here all the great guns of the day tried most heartily for the mastery. Mr. Teebay, of Preston, stood first, with his well-known pen, that was so recently exhibited at Coalbrookdale. It is really remarkable how constitutionally strong his birds must be, to stand week after week the trials of confinement, and yet show no visible sign of deterioration. The same gentleman added yet another triumph, by securing the second prize also, with a pen but little inferior. In proof of the general excellence of the class throughout, one-half of the pens entered received favourable notice in the awards. Mrs. J. C. Hall, of Sheffield, exhibited a marvellously good pair of hens, but the cock was quite out of plumage. It is very long since we noticed so much interest displayed by exhibitors as in this class, and we were told high prices were offered for many of the best specimens. Miss Rake, of Bristol, had an easy victory in Spanish *Chickens.* They were by far the best we have yet seen this year. The classes for *Hens*, and again that for *Single Cocks*, were all keenly contested. In Grey *Dorkings*, with a competition that has rarely been equalled, Captain Hornby swept away every first prize—viz., for adults, for chickens, for pair of hens, and for single cocks. With such opponents, such a result is the most convincing proof of their excellent management that could be brought forward. It is impossible for birds to be shown in better trim. In *Game* too, the Captain stood most conspicuous. The "old favourite" cock that has been so universally victorious, begins now, however, to show that "time will tell" on even his vigorous constitution. In the principal sweepstakes, he on this occasion had to receive the sixth premium; but his son, one of

the most perfect Black-reds ever seen, took first position. The *Cochin-China* fowls were mostly very good, and some of the chickens particularly so. The *Hamburghs* were first-rate, and the *Polands* throughout were very superior to classes of this variety as generally met with. The class for *any other breeds* held some particularly good Indian Game, and also Sultan fowls. Among the *Bantams* the Black were very good, and we were much pleased to see among the White ones a pen of decidedly the best White-booted Bantams we have seen for years past. The Game Bantams richly deserve the most favourable notice.

There was a capital display of *Ducks*, and some very interesting pens of Mandarins, Shell Ducks, and other fancy varieties.

The *Pigeons* appeared to excite an unusual amount of interest among the good people of Sheffield, and the general opinion of the collection throughout was most satisfactory.

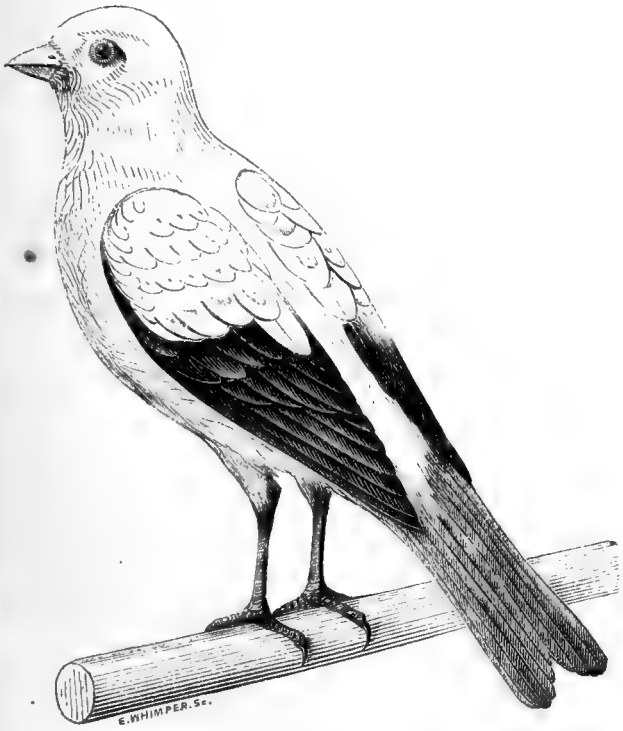
The *Rabbits* were of very high character, and appeared locally attractive.

In casting an eye over the whole of the appointments, there appeared to us but one open to improvement, and that certainly a somewhat important one—viz., the exclusion of exhibitors until the whole of the awards are completed. Another year, no doubt, the Committee will see the necessity of adopting this suggestion; and then, we think, the management of the Sheffield Committee may be safely copied by similar societies with real advantages to all interested in the pursuit.

THE CANARY AND THE BRITISH FINCHES.

(*Continued from page* 173.)

5th Variety.—The London Fancy Canary.



The London Fancy Canary, as its name implies, is a variety much cultivated in the metropolis, where there has been a Society established for promoting the improvement of these birds for nearly a century.

Mr. Hook, of Walworth, a successful fancier and breeder of this variety, has kindly favoured me with a copy of the printed Rules and Regulations of the Society, as it existed in the year 1779; and as it may be interesting to Canary fanciers to compare the laws of their grandfathers with those now in use in the present Society, I have thought it advisable to introduce them here.

"Articles.

"For a Jonque and Mealy Fancy Canary Bird subscription, to be held at the George, Newington Butts.

"Article 1st.—That the subscription be opened on the first Friday in March, and to be continued annually, when each subscriber shall pay, or caused to be paid, into the hands of the Treasurer, 2*s.* 6*d.* for every pair of birds each subscriber intends to breed with at one time, and may increase his number of pairs until the first Friday in May; then finally to close, and all subscriptions filled up, with 5*s.* towards the feast on the show-day, which will be on the last Friday in November; but on non-payment of full subscription and feast, the money before subscribed shall be forfeited at the close of the book, and no subscription to be taken for less than two pairs. Gay birds likewise to be subscribed for.

"2nd.—That at the close of the subscription the money collected shall be settled on a fixed number of prizes, and the Treasurer to give a note of hand to the Stewards for the money received for the benefit of the subscribers then being.

"3rd.—That two hens shall be allowed to one cock at one time, and no more, provided they are not in separate partitions; and no egg, or eggs, allowed to be carried out of the possession of the proprietor. Neither any brought in from other persons, nor any show-bird, or birds, to be carried out of the possession of the said proprietor until the show-day. On acting contrary to forfeit the subscription.

"4th.—That all clean birds must be declared before they are four weeks old; the day when hatched; also, the marks of the cap, and where the breaks lay; also, pinion, or pinions, and which largest; also, which pair bred from with their marks, and who bred by. The declarations to be filed till the show-day, and then compared with the prize birds, and all not answering the declaration to be allowed no prize. The next bird in succession to have it; and that the Stewards shall have a right at all times to see the birds. On acting contrary to forfeit the subscription.

"5th.—Any Member subscribed for a pair and breeds a show-bird therefrom, and after deliver, return, or send such pair to another subscriber who shall breed therefrom, not any of the produce after so sent, delivered, or returned, shall be shown.

"6th.—That the best bird to the standard, with eighteen long feathers in each wing, twelve in the tail, and if more, to be shown with the full number he at any time had, all being black, and he have voucher within fourteen days of the Show; and if a doubt arises by the Committee the bird to be detained. The next bird to be marked and the prize not paid till the Society is satisfied.

"7th.—None but subscribers to be admitted umpires, unless not a sufficient number to make a Committee. If any person shows a bird having an objection against any Umpire, by showing cause another Umpire to be chosen in his room; and at the previous Meeting to the Show, any person not having a show-bird shall have notice by a letter of his being chosen on the Committee, and on refusing to attend shall forfeit 10*s.* 6*d.*, or be expelled the subscription.

"8th.—That no person having bought, borrowed, or agreed for any declared bird, shall be an arbitrator when such bird is shown, on pain of forfeiting one guinea whenever discovered, or be excluded the subscription.

"9th.—No subscriber shall unjustly reflect on any of the Umpires for their judgment in the deciding, on immediately forfeiting 5*s.*; to be spent when convicted.

"10th.—Subscribers to be admitted by ballot. The majority to determine, except any person who has been rejected by other Societies, who shall not be admitted on any terms whatever.

"11th.—All monies forfeited shall become the property of the remaining members, and that the said sum, or sums, shall remain, unless otherwise expressed, in the hands of the Treasurer until the feast-day and then be spent.

"12th.—Any subscriber who shall obtain a prize in violation of the above laws, shall return such prize to the Treasurer for the benefit of the next bird in rotation, or be entirely excluded the subscription in future.

"13th.—That no subscriber shall breed with any bird bred by a non-subscriber, except what he possesses before this law takes place, which shall be on the first Friday in May, 1779; and after that, if it is proved any subscriber shall buy, borrow, chop, or take into his possession any bird, or birds, on any pretence whatever, bred by a non-subscriber, he shall be expelled all subscriptions in future, and have no benefit of the present.

"14th.—That no bird but what hath black in the stalk and web, as well as the flue of every feather in the back, shall be entitled to a prize.

"15th.—That three Meetings are necessary to settle the business of the subscription. The days of opening and closing, and a

fortnight previous to the Show to choose umpires. Therefore, every subscriber who doth not attend, shall be subject to the expense of 1*s.* each night, towards the expense of those who attend to settle the business, which shall be paid at the close of the subscription into the hands of the Treasurer, there to remain till the third Meeting night, and then to be spent."

From the perusal of this set of rules, or articles, drawn up by the London Canary Fanciers, to take effect in May, 1779, it is evident that the love of these birds must then have been deeply implanted in our grandfather and great-grandfather fanciers, and that the London Fancy Canary must then have been brought to great perfection.

This variety is evidently an offset from the Lizard Canary, long and careful breeding and selecting has brought it to a high state of perfection. The London Fancy Canary in its plumage presents three different changes of colour, which are rather remarkable.

In its first or nestling feathers it very much resembles a Lizard without spangles. The cap, or top of the head, is yellow in the Jonque birds, and pale, or whitish, in the Mealy. Their bodies being much like a common grey Canary, excepting that those that will be Jonque, have more green and yellow mixed in their plumage. Any light-coloured patches are not desirable on the body, though a little light-coloured down on the rump is considered a favourable sign. The cap should be quite clean and even, without any coloured feathers, or it is called foul or broken-capped. If, however, the foul feathers do not touch the beak, it may not be perceptible when the bird has moulted; but if it should touch, or stain, the beak, then it is most likely to remain as a blot, or blemish, to the bird. The quill-feathers of the wings and tail are very dark, approaching to black; and if any of these are white during their first appearance, they are designated foul-feathers, and remain a permanent blemish in the bird.

Soon after the bird has attained its growth it commences to moult or cast off its nestling-feathers. All except the quill-feathers of the wings and tail are renewed the first season. The bird is then in its handsomest or exhibition dress. The wings and tail not being moulted the first year, remain of their dark colour, and contrast beautifully with the new plumage of the body, which has assumed the hue of the cap, either Jonque or Mealy. On close examination these feathers will, however, exhibit traces of their former colour, as parts of the stalk, or shafts, of the feather appear dark, which gives the birds a slightly grizzled appearance, which, under the inappropriate name of spangle, is reckoned as the fourth property. The flue, or down, of the feathers also remains grey or dark, and this is also enumerated among the additional beauties. Should a wing or tail-feather be accidentally knocked or pulled out, it will be replaced by a new one of a lighter colour, which, though it may spoil the appearance of the bird, yet, if previously a dark feather, it would then show some black in the shaft and web, and prove that it was not a foul-feather originally.

Pretty as these Canaries are in their show-feathers, their beauty is transient, for at the second moult they cast also their wing and tail-feathers; and these assume the same colour as the body, only always exhibiting a slight black mark on the quill or shaft, and sometimes a little grizzling on the web, or vanes, of the feathers. If there is much of this black grizzle in their plumage, they are called strong-coloured birds; if very pale and almost clean in colour, it is said to be fine, or soft, in feather, and it is, I believe, a custom to match a strong with a soft-feathered bird, such being considered the best way of maintaining the relative proportion of colour in the offspring. If two strong or dark-coloured birds were matched together for some generations, they would approach the Lizards in colour; and, on the contrary, were two soft or clear-feathered birds put together, the young in time would have a tendency to become too soft, or light, in feather, and they would altogether lose the black ticks (or spangles). The blackness of their legs and flue would also disappear, and thus they would lose much of their peculiarity and beauties. I must, however, express my opinion, that the fanciers of this breed are, in their rules and regulations, too strict and exclusive, which has induced much in-and-in breeding, the consequence of which is apparent in the loss of the spangling or black ticks on the back, the patchy colouring of many of the young birds, the light colour of the down or flue, and the paleness of the legs, as well as the diminished size of the birds and their weakened constitutions; for I have heard great and numerous complaints of the losses fanciers sustain among their stocks. Mr. Hook also informed me of a fancier who was for some time very successful, but by in-and-in breeding after a time most of his birds went blind of one eye. I am sorry to see the fanciers departing from the standard of excellence laid down in their own rules, and losing sight of the ticks, or spangles, on the back, and the dark colour of the legs and down. I think it is much to be attributed to their very arbitrary and exclusive rules, which constrain the breeders to depend so much on their own stocks. I would suggest, that as Lizard and London Fancy are so similar, that each might be made useful to improve the other, if a very slight cross were introduced. I think that a little of the London Fancy blood thrown into the Lizard, would soften their colour and improve their spangling; while a slight dash of the Lizard in the London Fancy birds would strengthen their constitution, bring out the black ticks on the back, which seem nearly to have departed, and strengthen the colour generally, so that we should hear fewer complaints of patching or foul-feathered young ones. Their tails and wings should be more uniform, and their constitutions improved.

The sketch represents the London Fancy Canary in its show plumage, the body being moulted light, while the long feathers of the wings and tail still remain dark.

Fanciers acknowledge two sub-varieties called according to their prevailing colour. Those in which the body-plumage is a bright yellow, are designated Jonque London Fancy Canaries, whereas those of a paler or whitish body-colour are known as Mealy London Fancy birds. Still these sub-varieties are merely variations of the same breed.—B. P. Brent.

(*To be continued.*)

RED-LEGGED PARTRIDGES.

I have been interested in the mention made of the Red-legged Partridge. Having been much in contact with them, I will give my experience.

Twenty-two hatched at a cottage on a common. Tame as chickens till September 1st. Two killed by a double shot. Not one ever seen afterwards.

Sixty-four hatched in Gloucestershire. Took to a large patch of gorse. Constantly seen there every day. Four killed September 1st. Not one ever seen afterwards.

Between forty and fifty hatched in County Sligo, Ireland. Lived in a small farmyard. One killed September 1st. Not one ever seen afterwards.

Between forty and fifty hatched in Glamorganshire. So tame, the bailiff's wife had to drive them out of the house. One shot on the 1st September. None ever seen afterwards.

Where do they go? I have my own theory, but it is so stupid, I wish others to give theirs before I publish it.—Perdrix.

FEATHER-EATING FOWLS.

Will you tell me how I can cure a Dorking cock from pulling the white feathers out of the topknots of some Black Polands that I have? I have fastened the Polands up, but I find they suffer from it, so I have been obliged to let them run out with the others. I was advised to cut the spurs off the Dorking cock to prevent him repeating the offence.—Arthur.

[We cannot think cutting the spurs of a cock would in any way interfere with his feather-eating propensities. We have had repeatedly of late to remark on a disordered state of body in fowls, which prompts them to peck at, and eat any part of a companion's body that is exposed, or that is red or raw. This habit, or condition, is often the result of feeding on meat, or of the continued use of stimulants. It is always accompanied with much fever; and an excellent beginning of treatment is a copious dose of castor oil, a table-spoonful: one repetition is generally a cure. There is, however, something very tempting in the centre of the topknot of a Polish cock. We often at Shows see the two hens vigorously at work eating it, and if uninterrupted they will devour it. It may arise from a disordered stomach: or, we have sometimes thought, that as the likeness of the long toe of the Heron or Bittern in the water is said, by its resemblance to a worm, to attract fish; so, as a somewhat diseased topknot is always selected, we have sometimes thought the feather that cannot pierce the skin, and, therefore, turns and twists under it, may appear to them like an animal, and induce the first fatal taste.]

NOTES ON THE PRESENT HONEY SEASON.

I have some curiosity to know how it fares with my brother apiarians in different parts of the country, and whether their experience tallies with my own as to the present condition and future prospects of their apiaries.

In all my experience since I first began to keep bees, seventeen years ago, I never remember anything like the straits to which our insect friends in my own neighbourhood are reduced at this moment (I write on the 29th of June). They are, and for the last five weeks have been, literally "living from hand to mouth." In five of my original six stocks I can see no honey whatever, either in sealed up or in open cells; although towards the end of May not only had they still (all of them) a good deal of old honey left, but also much new honey sealed up in store for the coming winter; and I was congratulating myself on the very great promise of the honey season of 1860. A great change indeed has come over the "spirit of my dream." And yet, if the miserable condition of my hives in regard to wealth is sad to see, I never knew my bees so prosperous in regard to population. Every one of my queens has been incessantly breeding during this whole period, nor have I been able to supply them with boxes (of my own make) sufficiently fast, although the six colonies are occupying no fewer than eighteen boxes between them, being an average of three boxes to each colony: and each box appears choked up with bees. One of these stocks, moreover, gave a splendid natural swarm on the 15th ult., which I have established in a second bee-house. In all these eighteen boxes, save one (which I was obliged yesterday to give as a nadir to one of the six, which already occupied three boxes, but was hanging out *en masse*), the bees have worked comb at odd intervals, some of the supers being quite full of comb. I have observed that as fast as the young bees were hatched, the empty cells were cleaned out, and occupied again, the queens having unlimited room for depositing their eggs. In this respect I am more fortunate than our friend the "Devonshire Bee-keeper," as, in fact, I never had my apiary so uniformly vigorous and well-peopled. Should the weather change immediately I might yet do pretty well; but I see no prospect of a honey-harvest this year. There are few or no flowers to begin with, owing to the almost total obscuration of the sun for so many weeks. The bees themselves seem to have lost hope, and set to work yesterday with great and universal diligence to massacre the drones. I am, therefore, preparing to feed them on a large scale. This can do no harm, as it will only be so much gain in the event of fine weather coming.—B. & W.

Queen-rearing experiments have interfered so much with the normal state of my stocks, that the condition of my own apiary can scarcely be taken as a fair indication of the general prospects of the season in this locality. Nearly all my bees must have perished without artificial assistance; whilst in most the population and brood are alike scanty. A bee-keeper of my acquaintance had five swarms from three stocks during May, of which two have since perished from starvation, and this is by no means a solitary instance.—A Devonshire Bee-keeper.

APIARIAN NOTES.—No. VII.

My Apiary.—During the entire period of my bee experience, I never remember such a miserable season up to midsummer as the present. Few hives in this neighbourhood are increasing their stores; and swarms require copious feeding to enable them to exist at all. Notwithstanding this scarcity of food, and the wretched weather which has so long prevailed preventing the bees from actively foraging in search of what little there is to be found, my hives are, on the whole, in fair condition, strong in numbers, and ready to take advantage of any favourable change. But while the majority of stocks have been retrograding, it is strange that two or three cases have come to my knowledge in which a considerable progress has been made. One is a swarm hived on the 24th of May in a cottage garden, which I lifted on the 29th, or five days after, and found the combs brought down close to the boards; besides feeling as if it had increased some pounds in weight. Three other hives in the garden, with the exception of two of them throwing off swarms, were at a standstill as regards progress. Another instance occurs in my own apiary, in which a strong stock has filled a good-sized octagon super with combs, and appeared greatly to require additional accommodation. The adjoining hive, a new swarm, has only been kept alive by feeding; and the rest in that garden have refused to work in the supers—preferring, in some instances, to swarm instead.

It has occurred to me to describe the various hives in my apiary (or apiaries, I should rather say, as they are scattered about in the neighbourhood, not having facilities for keeping many hives in my town garden), to show what they have done, are doing, or are likely to do; so that I may be able to introduce a few remarks, or hints, which might not be remembered in writing an ordinary chapter of apiarian notes. I shall take them in order as they stand numbered in my note-book.

No. 1.—A common straw hive, a purchased swarm of a cottager in 1858. A four-inch aperture was cut out of the crown, and a board fixed on the top with putty, having a hole of three inches in diameter. The first season it gave a super containing some pounds of honey. Last year it was one of my strongest and most promising colonies. It was placed over a "nether hive" of Mr. Taylor's; the result of which, as compared with other hives in the same garden, proved a complete failure. In the month of August 11 lbs. of almost entirely unsealed comb, by no means of a particularly good colour, were taken off, and the box placed as a super on another hive, which was sent to the heath. On its return it had gained some little increase in weight, and nearly the whole of the combs containing honey were properly sealed. During the entire summer the nether box was crammed with bees choosing neither to swarm nor work, preferring that idle clustering below the stock, as bees hang out for weeks under a common hive. I am sorry Mr. Taylor should have given this and his nadir hive a place in his most admirable book, as I am convinced the plan is utterly worthless as compared with supering. When it is borne in mind that this stock was as strong as any other, and that I obtained respectively 52 lbs., 45 lbs., 40½ lbs., 25 lbs. and a fine swarm, 15 lbs. and a fine swarm from old stocks, and several supers of 25 lbs. and downwards from my swarms, it is but fair to conclude that the system on which this No. 1 was worked is a wrong one. This summer it is working, though slowly, in a large square super of thirteen inches diameter. Drones showed first from this hive on the 22nd April.

No. 2.—An octagonal Stewarton, dead; having been deprived of its queen for the substitution of a Ligurian queen sent by Hermann, most diminutive, unfertilised, and utterly useless. Loss incurred thereby £1 6*s.*, besides the sacrifice of a nice stock.

The queen was removed from this hive on the 24th of August, when there was a considerable quantity of brood in all stages. The Ligurian queen never bred, and died early in the spring, if not before. The hive was destroyed on the 24th of May, there being still many bees alive, proving that the longevity of bees may be extended to nine months and three weeks; but how much longer remains still doubtful, as those left showed few if any symptoms of old age.

No. 3.—An immense globe observatory-hive, capable of containing from 80 lbs. to 100 lbs. of honey, peopled by two swarms last season. It was exhibited with the bees at our horticultural show, and won a prize as well as attracting considerable interest. During autumn and winter, and up to within a few weeks, it was kept in an unfurnished drawing-room, working through the window. It has thriven amazingly, much new comb being built before this distressingly wet weather set in, and the globe is crowded with bees with an immense quantity of brood. In a remunerative sense this hive may be considered comparatively worthless, as there is no facility for partial deprivation; and it is, I suppose, too large to throw off a swarm, though the bees have occasionally clustered out in large bunches.

(Within a few minutes after writing the above, a fine swarm issued from this globe, and was safely secured, proving that swarms will issue from hives which are far from filled with combs.)

No. 4.—A flat, wooden-topped, straw hive, as described in the sixth edition of Mr. Taylor's "Bee-keepers' Manual," an admirable plan, and well adapted for those who do not like the trouble of, and do not appreciate, the loose-bar system. Hived in 1858. A shallow, octagon, Stewarton box is put on, and is very full of bees; but as yet no combs are visible.

No. 5.—A set of boxes on the Stewarton arrangement, but made at home from description with some modifications. Stocked last season, now working very well (taking the weather into consideration), in a full-sized octagon super.

There is, in my mind, an objection to the hives that emanate from Mr. Eaglesham, which would prevent my having recourse to them, and that is with regard to the bars, which are arranged contrary to all the known instincts of the bees. Think of seven

bars in a space of 13½ inches, when, if left to themselves, they would construct at least nine combs. In my own hives, any bar will fit equally well in any box, so that full combs can be easily shifted from one to another.

In common with the "Devonshire Bee-keeper," I have reduced the dimensions of, and distances between, bars, which are made one-inch wide, with half-inch interspace, instead of one-one-eighth of an inch bar, with same space between, as advocated by Dr. Bevan, Golding, and others; and yet find that the bees are more inclined to *lessen* the distance between the combs than to *exceed* it. For the honey-supers, the width of the bars is not of so much consequence, as the cells are made proportionately deeper; but for the stock-boxes, it is important that the nearest approach to the measurement, consistent with the habits of the bees, shall be the one adopted. Where removal of bees is no desideratum of the amateur, the Stewarton hive will prove as good as any other, but no guide-combs must be attached to the bars in the stock-box, all being left to the bees themselves. I once tried an experiment for the purpose of obtaining some very thick combs. Having a super which would in the ordinary way hold six combs, side by side, I attached guide-combs for four only, and was rewarded by complete success. One comb measured more than three inches and a half in thickness all through, the cells on one side being two inches and a quarter deep. If this had been done, even in a less degree, in a stock-hive, the extra room would have caused the bees much extra trouble, and some poor, thin combs would have been built between the others.

No. 6.—A large, nine-bar, octagonal box, stocked first with a driven swarm from No. 8 on the 24th of May. From some cause the bees dwindled away, and on the 23rd of June a good-sized swarm from No. 3 was united to them; but with an unusual amount of fighting. On examining the combs that had been constructed, a few inches of eggs and one or two lately-hatched larvæ only were to be found. In most of the cells were two, if not three, eggs, which appeared larger than the common eggs: hence I am led to conclude that this was a case of retarded impregnation. On driving the bees from No. 8 it was evident that the old queen had departed or died, as there was no young brood, and two royal cells from which the young queens had only just emerged—one of them making its escape during the disturbance created by the driving. The unfavourable weather must have prevented her majesty from being fertilised for a period, probably beyond the time assigned by Huber when the production of drones' eggs only is possible. There was no reason for her to lay more than one egg in each cell, as there was abundance of comb of which she could have availed herself. I cannot tell which queen now retains the sovereignty, but I hope it is the one from the swarm last added.

No. 7, *An Adjuster Hive.*—I have often found, after a very good season, that many of the hives which have done well become weak the following spring, and die, or would perish if not timely supplied with a queen: so it has proved with this, and with one or two others in my apiary. A fine swarm was hived in this box in 1857. The following season it gave me 30 lbs. of pure honey; and in 1859 I took off in one box 52 lbs. of the very finest honeycombs possible. Early this spring it was very crowded with bees, and seemed likely to prove again to be the best of my depriving hives. But the queen must have died in March; as, from that time, the bees diminished in numbers, though pollen was carried in up to the end of May, when I searched each comb finding no queen or sign of recent breeding. A swarm having opportunely risen the same day from another hive, was united to No. 7 in the usual way, having first excised the greater portion of the old combs. In this case a deadly warfare raged for about an hour, ending in the death of the greater part of the original inhabitants. This, however, was not of much consequence, as they were, in all probability, already living beyond the ordinary term of bee existence.—S. B. Fox, *Exeter.*

(*To be continued.*)

FERTILE WORKERS.

The queen cells in one of my small artificial swarms having turned out abortive, owing to the inclemency of the weather, some amongst the working bees have taken the opportunity of usurping the functions of royalty, by depositing eggs in the breeding cells. I presume these will produce drones, although laid in the workers' cradles; two or three being deposited in each cell. The depositing a plurality of eggs in a cell is not, however, peculiar to fertile workers, since a prolific queen, when pressed for room, will often deposit two or more eggs in one receptacle. I am unable to detect the difference in size which is said to distinguish workers which have assumed the functions of maternity. These fertile workers are Ligurians.

Although remarked upon by various apiarian writers, this is the first instance of the occurrence of fertile workers which has come under the direct observation of—A Devonshire Bee-keeper.

COVERS FOR HIVES.

In accordance with your request, I write to state that I have two common straw hives of larger dimensions than usual. In the top of each of these I have cut a large hole, and placed on the hive an octagon board of red cedar, about sixteen inches across. The large hives to cover these are 18 inches in diameter, and 28 inches high at the top (inside measure). I have two twelve-inch glasses, which I purpose placing on the boards when we are favoured with a better honey season than the present. I purpose securing the covers for the winter by making two holes in the hoop at bottom on each side, passing a loop of stout cord through these holes, and hooking it on to a nail under the side of the stool or block on which the hive stands. The two covers cost me 10s. each, which is more than I expected. I find the most economical protection and stand for hives is a wooden bee-house. The incessant rain this season has greatly damped though not totally extinguished the ardour of—One Suffering Severely from Apimania.

P.S.—Would "A Devonshire Bee-keeper" say whether he finds the Italian bees breed drones earlier than the black bees; also whether they really increase faster, &c.?

[The season has been so exceptional, and my bees have been so much interfered with during my queen-rearing proceedings, that I am unable to afford the required information.—A Devonshire Bee-keeper.]

OUR LETTER BOX.

White Bantams (*A Bradford Exhibitor, &c.*).—In answer to two northern correspondents, we have to reply that of White Bantams there are two perfectly distinct varieties, each of which is equally eligible for prizetaking—viz., the booted Bantams, and the perfectly clear-legged Bantams. Although distinct, and each strain will breed quite truly, any "cross-bred" specimens between the two varieties would be of not the smallest value as exhibition birds. At Birmingham, London, and many other of our principal shows of poultry, "booted Bantams" have taken precedence when well shown in the general classes for White Bantams; and by reference to the prize lists for Sheffield, it appears there was not a class for "any other variety of Bantams:" therefore the birds complained of by "F. H." had no other chance of competing than as "White Bantams."

Roup (*Arthur*).—Give each of them half a grain of powdered sulphate of copper daily in some soft food, bread sopped in ale, and plenty of green food, such as Lettuce and Cabbage leaves. If not better in a week or ten days kill them.

Points in Brown-breasted Red Game (*Tudor*).—The colour of legs is immaterial, but it is essential all should match in a pen. The most popular colour is willow. It cannot be taken as an indication of purity or otherwise, as other shades are not without their admirers. Hard body, close feather, smart head, full eye, and full but not over-large tail, carried more drooping than otherwise. We mention this, because many are now-a-days squirrel-tailed. The plumage should be very dark, but the principal feathers beautifully marked with yellow, and a rich but not bright copper; black breast, with bright brown shading, and very rich deep red or crimson wing. The hens should be very dark, with golden-striped hackle.

Age for Exhibiting Hamburgh Chickens (*M. W.*).—We should not advise you to exhibit Silver-pencilled Hamburgh chickens if less than four months old, unless they had grown very fast. The combs should be beginning to show, the deaf ears should be white in the pullets, and whitening in the cock, and the feathers getting firm. Give them a good dry run, with plenty of grass; and if you feed on ground oats you will, in weather like the present, *see them grow.*

LONDON MARKETS.—July 9.

POULTRY.

There is rather a larger supply of poultry than we have had of late, but the prices are much in excess of those of former years at this season. The truth is, there has been a scarcity.

	Each—s. d.		s. d.		Each—s. d.		s. d.
Large Fowls	6 0	to	6 6	Turkeys	0 0	to	0 0
Smaller Fowls	4 0	,,	5 0	Guinea Fowls	3 0	,,	3 6
Chickens	3 0	,,	4 0	Pigeons	0 8	,,	0 9
Geese	0 0	,,	0 0	Hares	0 0	,,	0 0
Goslings	5 6	,,	6 0	Leverets	3 6	,,	4 6
Ducks	0 0	,,	0 0	Rabbits	1 4	,,	1 5
Ducklings	2 6	,,	3 0	Wild ditto	0 8	,,	0 9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JULY 17—23, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
17	Tu	Phyteuma orbicularis.	30.073—29.857	88—48	S.W.	—	5 af 3	7 af 8	14 2	28	5 50	199
18	W	Lobelia Dortmanna.	29.827—29.772	91—57	S.W.	.25	6 3	6 8	sets	◎	5 55	200
19	Th	Verbascums, several.	29.869—29.813	90—54	S.W.	.01	8 3	5 8	32 8	1	5 59	201
20	F	Datura stramonium.	29.952—29.918	82—56	E.	.72	9 4	3 8	52 8	2	6 3	202
21	S	Sun's declin. 20° 24′ N.	29.912—29.827	83—52	E.	.02	10 4	2 8	9 9	3	6 6	203
22	Sun	7 Sunday after Trinity.	29.876—29.799	82—54	S.W.	.07	11 4	1 8	26 9	4	6 9	204
23	M	Impatiens noli-me tangere.	29.920—29.818	80—52	N.E.	.06	13 4	0 8	41 9	5	6 11	205

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 73.6° and 51.7° respectively. The greatest heat, 94°, occurred on the 17th, in 1834; and the lowest cold, 40°, on the 23rd, in 1843. During the period 121 days were fine, and on 110 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

As the very heavy rains we have had will have left some aluminous or clayey soils in a state to become hard when acted on by the sun and wind, it is advisable to use the fork, or hoe, to break and pulverise the surface, which will cause the soil so pulverised to arrest radiation by day, and to absorb moisture from the atmosphere by night. It is frequently surprising to observe the increase in the size of the leaf of any vegetable, more especially that of the Brassica family, after being dug or deeply hoed between. *Cabbages*, plant out some of last month's sown plants for use in the autumn. In Coleworts, make a sowing the latter end of the week for the first main spring crop. *Capsicums*, keep the plants watered in dry weather. If a little litter be laid around the roots they will not require it so often. *Carrots*, thin the late-sown crops, and loosen the earth between them where they have been sown in drills. *Celery*, the earliest planted to be gone over and divested of their small lower leaves and side-shoots, the trenches to be afterwards thoroughly soaked with water previous to the plants being earthed up, which should be done the following day as soon as they are quite dry. *Endive*, transplant a few more, and make another sowing. *French Beans*, make a last sowing in a sheltered situation; the drills to be watered if the soil is very dry. *Onions*, whoever is so fortunate as to have a crop of the autumn sowing, may now pull them up, to be laid in rows with their roots turned to the sun, and to be frequently turned until the stalks are withered, when they will be fit for storing. As they are apt to decay if bruised, they should be carefully handled. Let them be very dry when stored, and be spread out thinly, not huddled together in heaps. *Potatoes*, to be lifted as fast as they become ripe. The disease, I am sorry to say, is visible in a crop of *Early Shaws* dug up to day in this neighbourhood for the London market. *Shallots* and *Garlic*, to be taken up and dried for storing, as advised for Onions. *Sorrel*, to be cut down if required for use in the autumn.

FLOWER GARDEN.

The Roses require constant attention, as to good staking, disbudding, stopping, removing decayed blooms, top dressing, or liquid manuring, and budding. The most excitable kinds to be budded first, and on stocks with a strong root action. Nail the shoots of Fuchsias and Petunias, and to old stumps, or roots, that may have been introduced amongst rockwork, by so doing they produce a gay and pleasing effect in the autumn. Continue to peg down bedded-out plants as they progress.

FRUIT GARDEN.

Espalier Apple and Pear trees to have their leaders tied in, the superfluous shoots spurred. Remove superfluous shoots from the Apple and Pear trees in the quarters not trained, and on trees inclined to grow too luxuriantly; try the effect of tying downwards the points of some of the strongest shoots, which is frequently practised with very good results. Where it is intended to make new plantations of Strawberries, the ground to be prepared by deep trenching; a good portion of rotten dung to be incorporated with the soil but not to such an excess as to produce too much grossness at first, but rather to provide by depth for a steady and permanent growth. Remove all runners from Strawberries not required for making fresh plantations. Attend to the stopping and nailing of wall-fruit trees in general, and continue the thinning of the Grapes on the open walls.

STOVE.

When a fire is necessary here, in dull weather, to be lighted about one o'clock, and made to burn briskly for a couple of hours, and then permitted to go out of itself by four o'clock, the house to be shut up close about five o'clock, and water to be used in a liberal manner. By such means a congenial and sufficiently warm atmosphere can be retained during the night without fire heat.

GREENHOUSE AND CONSERVATORY.

Keep the plants clear of all dead and decaying leaves and blossoms, and the surface soil free and open. Give air freely night and day, syringe frequently the plants that are making their growth, pinching back all strong-growing shoots in due time. The plants to be potted when they require it, as previously directed, allowing them plenty of standing room that the air and light may circulate freely around them. If mildew appear, dredge them well with sulphur vivum. Care will be necessary in watering recently repotted plants, both of the soft and hard-wooded class, as in sunless weather they will require very little, and will be speedily injured by a careless supply until they have taken fresh roothold. When Grapes are grown in the greenhouse, they should be forwarded as much as possible, so as to have them fully ripe before any of the plants are ready to go in.

PITS AND FRAMES.

Attend to Cucumbers and Melons as lately directed. Keep down green fly, red spider, and thrips: these, when checks are given to the plants from any inattention to their necessary treatment, will make speedy progress.

William Keane.

PROPAGATING PARTICULAR KINDS OF BEDDING PLANTS AND FANCY PANSIES.

There is not one moment to lose now in getting in a stock of cuttings, for planting out next year, of all the new varieties of the old *Lantana crocea*. The dairymaids have them now in their front gardens, or can see them, touch and smell them, on the Rose Mount at Sydenham; and, of course, nobody will be quite in the fashion without some of the bedding Lantanas after that. The last basket, or the most recent contribution to the Experimental Garden, included three kinds of this fashionable family—viz., *Madame Miellez*, *Madame Augustine Wilhelm*, and *Madame Henry Jacatot*. These were from early spring propagation, and that will and must con-

tinue to be the way in great nurseries; but for private use in bedding out to any extent, the month of July and the very first week of it, if possible, are the right and best times to put in cuttings of these Lantanas for next year; and the reason why they are best is this—that ninety-nine out of a hundred places have no provision for getting spring cuttings of them in time for that season; and that autumn-cuttings of them are worse than useless in such places; and also that ninety-nine out of every hundred amateurs cannot strike them in the autumn if they or the kind is worth striking—that is, if they are in full bloom. It requires a good, or thoroughly good gardener to make nice things out of flowering-wood-cuttings of this class of Lantanas late, or as late as September. But by the first or second week in July the bedded-out plants, whether young or old, have just got comfortably rooted in the free soil, and are making very comfortable and convenient shoots for blooming in August; and these, *and none other*, are the right kinds to propagate from when they are three or four inches long; or, if longer, to take only the topmost three inches, if there are no flower-buds at the top, and shun all that have reached the flowering state, as they neither root so kindly or make good plants for keeping. The Lantanas are worse from cuttings of flowering wood than the *Unique* Geraniums—I mean worse for amateurs and all young beginners. Lantanas have been bedded for years and years, but it is very lately that we have had good bedding kinds from continental seedlings. I have bedded them eighteen years back, and it is nearly as long since I saw a bed of *Crocea* better than I could manage it with Mrs. Bosanquet, after whom the Rose of that name is called. The place is near to the nursery of the Messrs. Paul, of Cheshunt; and I dare say the Messrs. Paul have seen Lantanas bedded there before I knew a Geranium from a Mallow, or red from rose, or scarlet from crimson.

By-the-by, talking of Mallows brings up the French name of our *Malva sylvestris*, which is now in bloom in all the waste places in the kingdom. They call it "mauve," and you can see the two distinct kinds of natural mauve just now in the flower itself. The lighter part of the flower, or the ground colour, as one might say, is the medium or middle tint; the larger veins and stripes which run down to the bottom of the flower, and deepen as they recede from the eye, are the royal mauve; and the margin or edges of the flower as they begin to fade, are the light or lavender shade of mauve. The *Lady Middleton* Verbena will give this last tint of mauve. The gaily-coloured bracts of Bougainvillea are of the medium mauve tint in our hothouses; but against the open walls in Lisbon they are royal mauve; and when the plant scrambles up in its native woods its colour is as a burning bush. The *Prince of Wales* Hyacinth is our nearest tint to royal mauve; but all of them may be got "by heart" this month from the natural source of mauve.

Lantana cuttings, at the age and the condition recommended, will root as fast as Verbenas; and the moment they are fit to part they should be encouraged to grow in a close, cold frame for six or seven weeks, and to be stopped all the while at every second joint, and to be wintered in a rather dry state. Of course, gardeners who can put old plants of Lantanas into forcing at the beginning of February, strike their first growth, and force them up to the end of May, will have plants in half the time; but then they will hardly be more than one-half so good for bedding. Any sudden changes will cause the young of this family to sulk for weeks. I did them more than once from the February start, but it was an up-hill work to get them to look respectable in the beds before August was in, and I recommend the beginning of July for their annual propagation in general.

Of all the bedding Geraniums of the greenhouse-class mentioned in the last number of The Cottage Gardener, none were missed in former volumes except *Quercifolium floribundum* and *Black Prince*, and none of them "by rights" should ever be propagated in the summer and autumn, not but they would all strike in the open air if the cuttings were put in in July and up to the middle of August. *Dennis's Alma* and *Dennis's Lady Mary Fox*, are the next best bedders of their class after *Ignescens superbum*, and for small places better than that *Ignescens*, because they do not require so much room. None of the *Quercifoliums* or *Ignescens* breed should be propagated in summer. All the *Diadematums*, except *bicolor*, may be propagated in the summer with less prejudice to the future plant, and so may *Sidonia*; but when we know that three or four-year-old plants of all these races do better in the beds than younger plants, it becomes a matter of convenience to be able to make them into dwarf, bushy plants by closely pruning them in the autumn—a thing that one hardly could do with the lanky, long, wiry-legged plants which are made from the flowering shoots of such kinds.

But I must go to the opposite point of the compass at one bound, to tell of a cigar-box just received from the postman, with twenty queen's heads on; but the weight indicated that it was not from Havannah. It came up from Bradford Nursery, Shipley, Yorkshire, full of fairy Pansies, and such Pansies as you never saw before. They are quite new off the stocks, and Mr. William Dean who sent them, and who has 3000 more seedlings of the same strain to prove this season, says they are a Belgian race; but I well knew their grandmothers and great-grandfathers in this country, between Messrs. Downie and Laird, of Edinburgh, and Mr. Salter, of the Versailles Nursery, London, before any foreign florist had ever set his eyes on one of them. We owe the entire breed to the indefatigable and far-sighted industry of Mr. Salter, who took them up "for their fantastic colours," as he said, in his catalogues. He told me four or five years back, he had sold £10 worth of their seed to a grower at Erfurt, in Germany. I had also seen seedlings from that seed come back to England, and to the Experimental Garden, through Mr. Mallison, of Claremont, and the great-grandmother of *Dandie Dinmort*, and of *Parpaillot*, the two most "fantastic colours" in this collection before me, are still at the Experimental. But the Belgian and other continental florists have taken to this strain, and fashioned them on the model of the British florist, with which model they can now vie in size and substance, and still with all the fantasticity of colour for which Mr. Salter called them his "fancy Pansies." Now they are as sweet as Violets, my table is covered with them, and the room is scented; all the colours I have classified, as like planting Pansies for effect; and I vouch for it, from this private exhibition, that they will become just as great favourites with the public as the spotted French Geraniums have done.

Mr. Dean, and all who may have them on sale, must exhibit them at all the shows. They only want to be seen by the public to be bought up for relief and for variety from our *Ne Plus Ultra* Pansies; and the only way to tell on the public eye is to exhibit them in variety instead of in mixtures, as our florists do. Variety and mixture are as different as chalk and cheese. Variety teaches the value of colours. Mixture confounds the best eyesight on earth. Variety begins by showing every kind with the same prevailing colour side by side, beginning with the lightest or darkest shades, and goes on naturally from shade to shade to the opposite of the beginning. Mixture begins by putting black and blue and brown and white and yellow and rose colours down in one uniform mixture, as they happen to come to hand. When I began in the Experimental, I was compelled to plant on the mixed system, because the plants kept coming in to near the end of the season, and they had to be planted anyhow; but I could make nothing of them for comparison the first season. The second year I planted on the principle of giving variety instead of mixture—all the pink colours together; all the blushes,

flushes, tints, and tinges the same. I could then judge of the relative merits of each in its own class. The third season I was able to classify the colours and keep the best as easily as counting my fingers. If I had the whole of this new strain of improved fancy Pansies, I could plant them in that way, and force them to the farthest-off garden in the island. D. BEATON.

TRAINING MUSCAT VINES DOWN A WALL.

WILL you inform me whether *Muscat of Alexandria* Vines would be likely to bear well if trained down the back wall of the house in which they are grown? Or would it be better to plant more Vines at the back, and let them grow up to the top? The house is a lean-to, 50 feet long by 9 feet wide, about 11 feet high at the back, and 2 feet high in the front. The Vines are planted inside the house, one to each rafter; and as they have reached the top of the house, I thought of either training them down the back wall, or planting some young ones to grow up. I have some wire put up, projecting from the wall about 3 inches, to train them to. The house is heated by hot water—two rows of four-inch piping along the front flow and return, but none at the back; so that either plan will suit me which you think best. The wire is put up opposite the middle of each light between the rafters, so the Vines would have plenty of light. In the same house there are two of the *Grizzly Frontignan* Vines, and the berries always crack very much when they begin to ripen: can I do anything to prevent it?—A TWO YEARS' SUBSCRIBER.

[You will not succeed so well with *Muscats* on the back wall as you would do with *Muscadines* and *Hamburghs*. If the main stems up the rafters are nearer to each other than 4 feet or 5 feet you will not do great things with either. Considering the width of your house, we do not think it matters a bit whether you make your present Vines go down the back wall, or plant fresh ones there. We would prefer planting, however, merely because the roots would be so much the more under control, that you might have something like a succession crop in the same house. By-and-by you might try a plan we have frequently suggested, and take your present Vines to fill the back wall, and the back wall ones to come down the rafters. In either case you would give each Vine a long bare stem, which would always stand in good stead as a reservoir of nourishment. We presume you have kept the atmosphere and the soil of your *Frontignans* too damp, and with not enough heat.]

HORTICULTURAL SOCIETY'S FRUIT COMMITTEE.

A MEETING of the Fruit Committee was held at the Rooms, 8, St. Martin's Place, on the 18th inst. F. J. Graham, Esq., in the chair.

At this Meeting prizes were offered for collections of Strawberries, and for the best Seedling Strawberry. In the first class, which included the new or little-known varieties, the first prize of *one pound* was awarded to Mr. Charles Turner, of Slough, for *Oscar, Adair, Jeye's Wonderful, Wizard of the North*, and *May Queen*. In the second class, for the best collection of older varieties, the first prize was also awarded to Mr. Turner, for *Elton Pine, Filbert Pine, Sir Charles Napier, Rivers' Eliza, Myatt's Eliza, Admiral Dundas, Black Prince, Sir Harry, Carolina Superba, Ingram's Prince of Wales*, and *Trollope's Victoria*.

For the prize of *one pound*, for the best Seedling Strawberry, there were seven competitions. 1st, *Black Dwarf*, from Mr. Hally, of Blackheath, of which a plant in a pot was exhibited. It is of a close, dwarf habit of growth, and dark green foliage. The fruit is the size and shape of *British Queen*, but darker and more uniform in colour than that variety. The fruit exhibited was considered too acid. 2nd, *Blackbird*: this was raised and exhibited by Mr. Thomas Ingram, of Frogmore. The fruit is large, conical, or wedge-shaped, even and handsome in shape; of a bright shining-red colour; the flesh solid throughout, and pale scarlet, juicy, and richly flavoured. This received the *First Prize*. 3rd, *Prince Arthur*: this, also, is a Seedling raised by Mr. Ingram, of Frogmore, and was exhibited both by Messrs. Small, of Colnbrook, and by Mr. Bragg, of Slough. We described this variety in our report of the former Meeting of the Committee. On this occasion it was much superior in flavour to what it was at last Meeting, and was decidedly rich and piquant. It was awarded a *First-class Certificate*. 4th, *Highland Mary*, and 5th, *Richard the Second*, both from Mr. Cuthill, of Camberwell, were not thought to possess any novelty in their character, and were, besides, very acid in flavour. 6th, *Myatt's No.* 14, and 7th, *Myatt's No.* 15, both raised by Mr. Myatt, of Deptford, are of the *British Queen* race, and in appearance bear considerable resemblance to that variety; but they were deficient in richness of flavour, there being a predominance of acid.

It is to be observed that, in consequence of the extreme lateness of the season and the great want of sun, all the varieties exhibited in collections were very deficient in flavour to what they are in good seasons, being all decidedly more acid than was desirable. It is, therefore, fair to conclude that the seedlings exhibited have also suffered from these disadvantages, and that in a warmer season their merits may be of a higher order than they presented on this occasion.

Mr. Daniel Robertson, of Linside, near Paisley, sent three plants of *Wizard of the North*, in pots, one of which was of a very large size, and bearing large clusters of immature fruit. Mr. Robertson stated in a communication to the Secretary that in consequence of the lateness of the season he had not yet been able to obtain ripe fruit of this seedling, and the plants had been sent merely to show their productive properties.

Mr. Standish, of Bagshot, sent a bunch of a new Seedling Black Grape, having a Muscat flavour, raised by Mr. Ingram, of Frogmore. It was stated that it would prove a hardy Grape, and an abundant bearer. The bunch exhibited was nine inches long, and tapering similar in shape to that of *Black Prince*, well set, and with black oval berries. The fruit, although not sufficiently ripened, was rich and sprightly, with a decided trace of the Muscat flavour. Mr. Standish intimated his intention of sending another and larger bunch to the Meeting on the 30th, when it would be in a better state of ripeness. It is proposed to call it *Ingram's Hardy Prolific Muscat*.

Mr. W. P. Ayres, of Orchardligh Park, sent a Seedling Melon, called *Hybrid Cashmere*, eleven inches long, oval, and of a green colour. It was of very good flavour, but was not thought to differ materially from the *Beechwood*, than which it was somewhat longer in shape.

Mr. J. Mitchell, of Escrick Park Gardens, near York, sent a dish of what was supposed to be a Seedling Peach, raised some years ago at that place. They were large and handsome; but, in the opinion of the Meeting, it was too much like *Bellegarde* to be considered distinct.

Mr. Newton, of Enfield Chase, exhibited an excellent bunch of *Black Hamburgh* Grapes, which had been grown at that place under the name of *Black St. Peter's*.

Messrs. James Carter & Co., of Holborn, sent specimens of the *Black-seeded Alphange Lettuce*, very large, but not a desirable variety to grow.

HEATING BY HOT WATER WITH GAS FOR FUEL.

I WISH to have a warm greenhouse, cool greenhouse, and propagating-house, all combined and heated from one boiler. The house will be 34 feet long, 15 feet wide, 11 feet high in the centre, and 6 feet at the sides (2 feet brick and 4 feet wood and glass), one side all brick, which is the N.E. side. The propagating-house 12 feet long, 6 feet wide, 7 feet high, and 3 feet at the lowest end. The stage will stand upon brickwork 2 feet high, and filled up with earth even to the top of brickwork. This I think will save a large space which will not have to be heated. I propose to heat the boiler with gas, upon a plan, I think, has not yet been adopted. The person who does the gas-fitting I require, has a burner which is very extensively used for heating purposes. The burner has ten holes and will spread a flame five to six inches in diameter. By a certain contrivance the air mixes with the gas before it is consumed, and the great charm is, it produces no smoke. The gas will be lighted from the outside of the house, and enclosed with an iron door with a ventilator, to give air to the flame. I intend to have the boiler made of block tin (enclosed in brickwork), to hold about two gallons, about 12 inches in diameter, 18 or 20 inches high. The burner will be placed at the bottom of the boiler; the hot air will pass off through a coil of pipes in the centre of the boiler and out into the open air. (This plan I have taken from your little and

valuable work, "Greenhouses for the Many.") By this plan a great saving will be made in the consumption of gas, as the hot air will help to heat the water. I also propose to have a tank (made of galvanised iron), 12 feet long and 4 feet wide, 4 inches deep, and filled with water in the propagating-house. To heat this, I intend to have a branch carried from the flow-pipe (two-inch pipe), all round inside the tank. This, I think, will heat the water in the tank and give me a sufficient bottom heat for propagating. I have some little doubt upon this last plan. All the other pipes are to be four-inch pipe. I intend to carry the flow and two returns off from the boiler, with two-inch pipe for about one foot, and connect it to the four-inch pipe. I intend the flow and return to pass under the tank, which will give top heat in the propagating-house. By the several stopcocks I shall be able to heat the house up to various temperatures, and also propagate only when required. Any improvements or suggestions you could make will be very acceptable. If you think the plan a good one, I shall be happy to communicate the results when completed; also, the cost of the gas. My reason for wishing to adopt gas is, I am engaged in town all day, and by its simplicity any person could be left to manage it. Is it best to have all the laps puttied up?—H. M. P.

[With the main features of your house we see little to amend, provided your calculations should turn out to be correct. If you carry out your plan we should be very glad indeed to hear of the results. Meanwhile we are doubtful if you will succeed in heating such a house sufficiently with one gas-burner, however powerful; though we allow that your mode of heating will give almost as much from that jet as you can by any possibility attain. In the first place we would hint that the coiled pipe, after passing through the boiler, might be continued some yards in the house. The reason for decidedly having gas does not seem to us very strong, as there will be more danger during the day from want of attention to air-giving and shading, than to suffering from want of heat. We think, also, your proposed boiler will hold more than two gallons, unless it is hollowed in the centre. Have you thought how many gallons your piping will hold, and the time these will take to heat properly? If gas is to be used, strong block tin would be the best, but it would be wise to have an extra boiler in supply in case of accidents, as we have known instances of some being burned through in a short time. On the whole, were there nothing particular against it, for such a large concern we should prefer a small conical boiler, and a small furnace to be heated in the usual way. With all the contemplated improvements we fear the expense for gas will be great; but we should most gladly be undeceived in this matter.

We should also prefer being able to heat the propagating-house by itself—at least so as to be able to give bottom heat without giving top heat to it, or the other hothouse when not wanted. We should, therefore, prefer four-inch piping, or at least three-inch piping, in the tank to two-inch. If the tank were on the same level as the piping, or even a little higher, no piping at all would be required, but a short flow-pipe and return-pipe from the tank to the boiler. If there is any difference in level, the close pipes will be the best; and then, unless just for saying you had a tank, it would not be absolutely required at all. These pipes, surrounded first with a foot of broken bricks, stones, &c., surmounted with gravel, and then sand or ashes, would just answer as well as the tank of galvanised iron. You may either keep your sand dry or damp, as you wish. People generally succeed best with their own plans, however; and therefore, if you have a galvanised iron tank, there is one thing to be thought about—and that is, that the tank should stand as free as possible, and be supported on blocks of wood. If it rests on earth or brickwork it will be apt to corrode and rust. We have seen zinc, tin, and galvanised iron thus injured when used as pipes for heating; but they remained sound a long time when standing clear and supported on wooden brackets. You are so far right as to your stage; but if you have less air to heat you will have a body of brick and earth that will absorb, and also what will be of benefit to you will give out that heat slowly afterwards. But the fact of having less air to heat, will subject you to the inconvenience of having less to cool: hence small houses and pits are more variable in their temperature and feel sudden changes more than large ones. Besides, the plants will not have so much air, or such frequent changes of air when the house is shut up, as they would have if there were a fair quantity of shelves below the stage as well as above it. Were economy in construction and attendance our object, we would carry your idea a step further, and raise your brick walls a foot or so more; and then filling the enclosed space with earth, with a deep covering of sand, on that sand platform, or table, we would set the plants, and dispense with a stage altogether. The plants standing on the moist sand would suffer less from dryness than when standing on shelves, if the cultivator must be absent during the day. As already stated, air giving then will be more particular than heating, and that can only be regulated under such circumstances by giving a little air *early*, and keeping a little on all day even in early spring. By such a mode the house will never get scorched, nor will the heat fall injuriously low, if the heating power is kept under lock and key until the enthusiastic cultivator himself returns. We should use small laps and not putty them.]

HARDY VARIEGATED TREES.

The human mind delights in variety. If everything were green, or, indeed, any other colour, the sameness would be far from pleasant: hence the great Creator has given to flowers various hues to delight His creatures, at least, His chief creature, man, and given him powers of mind to delight in variety of shade and colour. How glorious are the tints which the foliage of trees take in the autumn! and how the artists revel in their rich shades at that season of the year! It is this love of variety that has brought plants with coloured leaves into so great estimation; and to supply that estimation with more numerous objects, nurserymen and collectors have striven, and with great success, to discover, raise, and increase them, so as to bring them within reach of all cultivators desirous of growing them. There are, however, considerable numbers of cultivators who would purchase them, but are ignorant of the many varieties that are waiting their orders. To give that knowledge is my object in drawing up the following lists of variegated trees and shrubs. I shall not only give the names of the variegated-leaved varieties, but also such as have leaves of different colours to green—such for instance, as the well-known purple-leaved Beech. I would premise, however, that trees with variegated and coloured leaves are not as yet very numerous, neither is it, in my opinion, so desirable; because the foliage of a tree is so elevated from the sight, that the variegation does not appear to so great an advantage as on the more humble class of shrubs. This does not, it is true, apply to self entire-coloured leaves on trees—such, indeed, show to advantage however lofty they may grow. A group of the dark-leaved Beech, for instance, contrasts beautifully, even at a considerable distance, with the green foliage of other trees. A woodland-walk or carriage-drive might be agreeably diversified by a group of variegated trees. The mass would have an effect, whereas an isolated striped Elm or Oak would be hardly observable. Many an open glade in forest land might be occupied with three or five beautiful-foliaged trees, which, in such a situation, would be seen to advantage, and, no doubt, greatly admired. Where the pleasure-ground is extensive, a single fine specimen of the purple-leaved Beech, Elm, or Sycamore, would have a good effect.

With these few premising remarks, I now proceed to give the names of trees with various-coloured and striped leaves. To increase them they must be grafted, inarched or budded.

Acer campestre variegatum (The striped-leaved Maple). Britain.

A. platanoides variegatum (The Plane-like Maple). Europe.

A. pseudo-platanus variegatum (The false Plane tree or Sycamore). Britain.

A. rubrum variegatum aureum (The red-flowered golden-variegated Maple). N. America.

A. rubrum variegatum argenteum (The red-flowered silver-striped Maple). N. America.

Æsculus hippocastanum foliis argenteis (The silver-leaved Horse Chestnut). British Gardens.

A. hippocastanum variegatum (The common striped-leaved Horse Chestnut). British Gardens.

Betula alba foliis variegatis (The striped-leaved White Birch). A truly elegant tree. Native of Britain.

Castanea vesca foliis aureis (The golden-leaved Chestnut). British Gardens.

C. vesca variegata (Silver-striped Chestnut). Gardens.

C. vesca chrysophylla (The Golden Chestnut of California). Foliage dark green on the upper surface, and a rich golden colour underneath. This beautiful tree is of recent introduction; and to add to its value as an ornament to our plantations, it is evergreen and perfectly hardy. It will, most likely, come true from seeds. It is at present high in price.

Cerasus Caproniana variegata (The Hautbois Cherry with striped leaves). S. of Europe.
C. padus argentea (The silver-leaved Bird Cherry). Britain.
Fagus purpurea (The Purple Beech). Germany.
F. sylvatica atro-rubens (The dark-red-leaved Beech). Britain.
F. sylvatica cuprea (The copper-coloured Beech). Britain.
F. sylvatica foliis argenteis (The silver-leaved Beech). Britain.
F. sylvatica foliis aureis (The golden-leaved Beech). Britain.
Fraxinus excelsior argentea (The silver-barked Ash).
F. excelsior atro-virens aurea (The golden-barked dark-green-leaved Ash).
F. excelsior lutea (The yellow-margined Ash).
F. heterophylla variegata (The variegated various-leaved Ash).
F. virens variegata (The green variegated-leaved Ash).
Juniperus Virginiana argentea (The silver-striped Red Virginian Juniper).
J. Virginiana aurea (The gold-striped Red Virginian Juniper).
Populus balsamifera variegata (The variegated Balsam Poplar).
Pyrus aucuparia foliis variegatis (The striped-leaved Mountain Ash). Britain.
P. communis (The variegated-leaved common Pear). Britain.
P. nivalis (The snowy-leaved Pear). Austria.
Quercus cerris variegatis (The variegated-leaved Turkey Oak). S. of Europe.
Q. coccinea (The scarlet-leaved Oak). N. America.
Q. ilex variegata (The striped-leaved Holly Oak). France.
Q. pedunculata foliis variegatis (The striped-leaved long-stalked common Oak). Britain.
Q. pedunculata purpurea (The purple-leaved common Oak). Britain.
Q. sessiliflora pubescens (The silver-haired stalkless Oak). Britain.
Tilia Europæa platyphylla aurea (The golden-leaved broad-leaved European Lime). Britain.
T. Europæa variegata (The striped-leaved European Lime).
Ulmus Americana foliis variegatis (The variegated American Elm).
U. campestris foliis aureis (The golden-striped-leaved English field Elm.
U. campestris foliis argenteis (The silver-striped-leaved English field Elm).
U. glabra variegata (The variegated smooth Elm). Britain.
U. montana purpurea (The purple-leaved Scotch Elm).
U. suberosa foliis variegatis (The variegated Cork-barked Elm). Britain.

T. Appleby.

GRAND NATIONAL ROSE SHOW AT THE CRYSTAL PALACE.—June 12th.

Fortune has favoured the brave from the days of the Romans to this Crystal Palace Rose Show, when Roses in the new style and the newest style of Rose were brought together; and the best Perpetual Rose in the first-prize stand for new Roses is the nearest in looks to our old Cabbage Rose since the advent of that beautiful sweet lady of foreign name and lineage, the *Baronesse Prevost*, as we say here, and the "Baronné Prevo," as they say in France. It is a good sign to begin at the bottom step of the ladder, wherever you aspire to, and to get up, step by step, to the top, from good to better, and from better to best. From St. James's Hall to the Hanover Square Rooms, and thence to the height of Sydenham, is how the National Association in the favour of Roses reached the top round. And they did reach it, without any mistake or misgiving. The Show was grand, the arrangements were complete throughout, the day was fine, and the company were most numerous and highly gratified; and of all the shows I ever attended, I never saw so many note-books and reading of names. I kept to it as close as Spergula keeps to the surface, from 10 a.m. to a quarter to 3 p.m.; and what with the pressure in front against the barrier-ropes, and the pushing on both sides and the other side, with steel hoops in mauve, light lilacs, and azure blue, I was marked just like a Highland steer going to a Falkirk tryst in the days of the Georges. You never saw anything like it—at least, I did not. If the flowers had been arranged on a single run of platform, they would have dipped into the crystal fountain at one end, and into the bronze fountains at the other; but the platform was double, with pot Roses, and furnishing plants down the centre, occupying the north end from the great transept.

The prize list will show the results of the competition, but not the extent of it, or anything like it.

The most striking sign of the Show and of the times was, that a man who never was suspected of knowing more than a Cabbage Rose from a Provence Rose, should take the first prize in the class he entered in, and showed better Roses than were ever seen in that class, or almost in any other; and I shall give a sketch of how he placed them for effect lower down; and Mr. John Keynes, of Salisbury, is this young Norval, who thus won his spurs at the first clash of arms.

The neatest-placed Roses for the drawing-rooms were those from J. T. Hedge, Esq., Reed Hall, Colchester, and he had a deservedly first prize in that class. He packed his boxes first with common moss, as others do and did, and the top he turfed all over with another very dwarf moss, cut into turves of a few inches each way; and his Roses, of course, looked better in the eyes of many ladies than any others, on account of this high finish, just as our flower-beds will look so much the better when they show in the midst of Spergula turf. The different kinds of moss in which the rest of the Roses were shown, looked just as ragged and jagged compared to this as our mossy banks and slopes of cut Grass do by the side of Spergulas.

A box of *Cloth of Gold* Rose, from Mr. Cant, was the finest sample of that kind ever seen in England; *Isabella Grey* was not there at all, nor were other yellow ones very prominent; *Général Jacqueminot* was the best-coloured Rose there; *Eugène Appert* is darker and of more velvety substance, but that does not improve the clean clearness of a distinct colour; *Cardinal Patrizzi* is the next darkest; then *Lord Raglan; Emperor Napoleon* is darker and of the blood of *Eugène Appert*, but not a good-shaped Rose; *Triomphe des Beaux Arts* is a very beautiful dark Rose; *Anna de Diesbach*, a splendid Rose, was universally asked about; *Anna Alexieff* again, a fine crimson Rose, the same; *Altesse Imperiale*, a splendid dark velvety crimson ditto; *Evêque de Nimes*, the same; *Comtesse de Cecile de Chabrilliant*, very large satin Rose; *Léon des Combats*, very large purple crimson; *Oriflamme de St. Louis* is a magnificent thing, rich as its mother *Général Jacqueminot; Louis Chaix*, another most beautiful crimson; *Victor Trouillard*, a fine, glossy, purplish crimson. The most common in all the stands were, *Géant des Batailles, Général Jacqueminot, Lord Raglan, General Simpson, Madame Vidot, Mrs. Rivers, Comte de Manteuil, Boule de Nanteuil, Shakespear, La Reine, Madam Masson, Jules Margottin, Paul Ricaut, Paul Perras, Caroline de Sansal, Auguste Mié, William Griffith, Gloire de Dijon* (Tea), *Triomphe de Paris, Madame Hector Jacquin, Charles Lawson, Bacchus, Devoniensis, Alexandrine Batchmetoff*, and *Pio Nono*. The yellowest were, *Cloth of Gold, Viscomte de Cases, Mrs. Siddons, Solfaterre, Gloire de Dijon, Yellow China, Auguste Vacher*, a fine, coppery Tea Rose; but Tea Roses were not numerous. The great battle was with the Hybrid Perpetuals, a few Bourbons, and Gallicas.

I have the names of the kinds in two-thirds of the collections, large and small; and the bare names would fill ten pages of The Cottage Gardener, and be of little use after all. But Mr. Keynes's arrangement of them in two rows, and being for the first time, here they go in pairs, three blooms of each:—*Madam Rivers*, light, and *Pauline Lansezeur*, deep rose; *Souvenir de Leveson Gower* and *Juno; Madame Knorr* and *Général Jacqueminot; Comtesse de Chabrilliant* and *Enfant de Mont Carmel; Prince Léon* and *Gloire de Vitry; Stephanie Beuharnois,*

a splendid flat-faced Rose, and *Géant des Batailles; William Griffiths* and the huge *Malmaison* Rose; *Evêque de Nimes* and *La Ville de St. Denis*, another huge Rose. These were all in contrast, every pair.

The Messrs. Paul put theirs very much in that style; and Mr. Laing, of Twickenham, the same. Mr. Cant, of Colchester; Mr. Cranston, of Hereford; and Mr. Mitchell, of Pilldown Nurseries, Maresfield, Sussex; and Mr. Hollamby, of Tunbridge Wells, were fully as up to the mark as the Messrs. Paul; and Messrs. Rivers and Lane did not contribute.

The pot Roses were very numerous, but not like the usual show-Roses in pots. After the public eye has been saturated with such Roses in pots as were at the last May Show, and at all such shows of late years, it seems astonishing to see little 32 and 24-pots by the score and dozen, and covered with green slime on the surface of the balls, and trumpery little Roses in them not worth the price of the pots. Were it not that Sir Joseph Paxton was there when I arrived, and Mr. Grove the Secretary, and Mr. Houghton the Palace Manager, and that the three hailed the old Highlander with a "cead failte dhui," I should have insisted on the police removing the dirty part of the pots at any rate; so as that country people could not plead against charges of slovenliness by saying they had seen nasty, dirty, slimy pots with Roses at the Crystal Palace. I hope such a thing will never happen again; for our National Association for Roses deserves every encouragement in every shape we can think of; and every one of us ought to be proud of his success, and help them both with money and with every species and every variety of encouragement. Other great shows seem more of sight-seeing than any real good they do; but Rose shows, I can vouch for, are a real luxury and a good school for thousands and thousands, from the stratum over the plant exhibitors, and from three or four of the strata below and on each side of them.

Of the new Roses for last year *Anna Alexieff* and *Eugène Appert* are said to make the best beds; and the following as the best show Roses. *Oriflamme de St. Louis, Altesse Impériale, Comtesse Cecile de Chabrilliant, Anna de Diesbach* (like *Camellia elegans*), *Virginal* (white), *Princess Olympie* (blush white).

The best new Roses of this season are *Celine Foster*, a splendid yellow Noisette, shown by Mr. Standish; and one Hybrid Bourbon, like a maiden blush, called *Mademoiselle Bonnair;* a Cabbage-Rose-looking Hybrid Provence called *Armide;* and a new colour, like old *Vesta* of thirty years back, and the nearest to scarlet, called *Le Senateur Vaise*, in the Messrs. Frasers' first-prize collection; but recollect, they are only best according to my fancy; *Louis the Fourteenth*, Hybrid Perpetual, in the same collection, seems a grand dark Rose. *Altesse Impériale* puts you in mind of *Crimson Boursault* just ready to open. *Francis Arago* in Mr. Standish's new class is all but black; and *Stephanie Beuharnois*, also in the same lot, is really a splendid thing.

Mr. Turner, of Slough, exhibited a large basket of the *Oscar* Strawberry, a most noble-looking, dark, angled, and cockscombed fruit, of which, no doubt, he has abundance of plants; and Mr. Bragg, of Slough, had cut Pinks, Pansies, and Sweet Williams; and some one from Castle Bromwich, near Birmingham, had a fine lot of cut and trussed-up Verbenas; but as I was just taking his name, a huge Cyclop-looking man pushed a Diana against my elbow, and my pencil went smack through a self-ventilating bonnet on the other side, and I ran off out of the Palace for fear of the police. D. BEATON.

The following were the awards in the various classes:—

Class 1.—TO GROWERS FOR SALE.—A. *For 100 varieties, three trusses of each variety.*—First, Mr. J. Mitchell, Pilldown Nurseries, Maresfield. Second, Messrs. Paul & Son, Cheshunt, Herts. Third, Mr. E. Hollamby, Tunbridge Wells. Fourth, Mr. J. Cranston, Hereford. B. *For 50 varieties, three trusses of each variety.*—First, Mr. B. Cant, Colchester, Essex. Second Mr. E. Hollamby, Tunbridge Wells. Third, Mr. E. Tilly, Bath. Fourth, Mr. C. Turner, Slough. C. *For 24 varieties, three trusses of each variety.*—First, Mr. J. Keynes, Salisbury. Second, Mr. R. Laing, Nurseries, Twickenham. Third, Messrs. Paul & Son, Cheshunt, Herts. Fourth, Mr. G. Clarke, Nurseries, Streatham Place, Brixton Hill.

Class 2.—TO AMATEURS KEEPING A GARDENER.—D. *For 48 varieties, one truss of each variety.*—First, J. T. Hedge, Esq., Reed Hall, Colchester, Essex. Second, Rev. S. R. Hole, Caunton Manor, Notts. Third, C. M. Worthington, Esq., Caversham Priory, Reading. Fourth, Mr. S. Evans, gardener to C. J. Newdegate, Esq., Arbury, Nuneaton, Warwickshire. E. *For 24 varieties, one truss of each variety.*—First, J. T. Hedge, Esq., Reed Hall, Colchester, Essex. Second, Mr. S. Evans, gardener to C. J. Newdegate, Esq., Arbury, Nuneaton, Warwickshire. Third, Mr. Hudson, gardener to F. Barchard, Esq., Hasted Place, Uckfield, Sussex. Fourth, W. Mercer, Esq., Hunton, Staplehurst, Kent. F. *For 12 varieties, one truss of each variety.*—First, Rev. T. M. Wetherall, Hasley Vicarage, Newnham, Gloucestershire. Second, C. M. Worthington, Esq., Caversham Priory, Reading. Third, Rev. S. R. Hole, Caunton Manor, Notts. Fourth, Mr. Terry, gardener to C. G. Puller, Esq., M.P., Youngsbury Park, Herts.

Class 3.—TO AMATEURS NOT KEEPING A GARDENER.—G. *For 24 varieties, one truss of each variety.*—First, Mr. T. Mallet, St. Mary's Gate, Nottingham. Second, A. Fryer, Esq., Chatteris, Cambridgeshire. Third, Mr. T. Walker, Merton Street, Oxford. Fourth, T. Laxton, Esq., Stamford. H. *For 12 varieties, one truss of each variety.*—First, A. Fryer, Esq., Chatteris, Cambridgeshire. Second, Mr. H. Morris, Rose Villa, Caunton, Notts. Third, Mr. T. Mallet, St. Mary's Gate, Nottingham. Fourth, T. Laxton, Esq., Stamford.

Class 4.—OPEN TO ALL. FOR ROSES IN POTS.—I. *For 24 Roses, in twelve varieties, in pots not exceeding thirteen inches in diameter.*—First, Messrs. Paul & Son, Nurseries, Cheshunt, Herts. Second, Mr. E. P. Francis, Nurseries, Hertford. J. *For 50 Roses, in twelve varieties, in pots not exceeding eight inches in diameter.*—First, Mr. E. P. Francis, Nurseries, Hertford. Second, Mr. C. Turner, Royal Nursery, Slough.

Class 5.—OPEN TO ALL. NEW ROSES.—K. *For the best collection of Roses not previously exhibited.*—First, Messrs. J. & J. Fraser, Lea Bridge Nurseries, Essex. Second, Mr. J. Standish, Royal Nursery, Bagshot.

(By a truss is meant a Rose, with its buds and leaves, shown as cut from the tree.)

The total visitors during the day amounted to 16,312, being admissions on payment, 13,443, by season tickets 2,869.

BEGONIAS AND GLOXINIAS FROM LEAVES.

"Would you oblige "JANE" with the proper method of propagating Begonias and Gloxinias from leaves?"

WHO will say that the above is not a pattern specimen of what an inquiry should be? It is very pleasant to attend to all the wishes of our readers and correspondents, and, as far as our knowledge permits, to try and meet their varied circumstances. But, when a press of business urges, and there is little time for weighing the importance of conflicting claims to be noticed, which is the case that will be apt to meet with prompt and immediate attention—one that we can scarcely make out what is wanted, after reading and re-reading some five or six pages of manuscript, or the one about which there can exist no vestige of a mistake, though presented to us in half that number of lines? Talk of finding employment for women! Why, if inquiries on gardening are to be taken as any symptom of the "coming events that cast their shadows before," the difficulty will be to find employment for the men.

Let this peg-topping, and corsetting, to be followed ere long with padding and hooping, as accompaniments of goat-bearding, and the everlasting puffing of smoke from tobacco, that fast removes what little sense and brain were left to the poor things that can see nothing so remarkable and beautiful in creation as their own sweet lovely selves, and where are we ultimately to find lucidity of judgment, clearness of apprehension, prompt decision, and straightforward directness of purpose, so necessary for forming business habits?—where but among our pure, healthy-toned ladies, who dare to think and act upon their thoughts, and thus rise superior to all mere morbid conventionalism?

Already this clear-sightedness, this going direct to its aim, this next to despising all and everything that is sham, is becoming alarming to the dawdling, dangling, dreamy, ever-approaching-to, but ever-hesitating, and never-know-what-they-would-be-at great young dons of society. When the fourth year, called by a burlesque fashion the ladies' year, comes round, their fears rise to fever heat lest they should be caught and pounced upon; but they may rest in comfort—not one of such ladies would ever treat on conditions with them. They may tickle their vanity by seeming pleased with them as pretty toys, whilst all the while they regard them as useless drones in the great hive of humanity. With a natural tact, approaching the inspiration of genius, an intelligent woman can soon perceive that such triflers are thoroughly incapable of loving anything or anybody so much as they do

their own dear selves. Would such men feel a sympathy with them in raising plants from leaves as by any other means? and what would pleasure be without a sharer of our joy?

It is now many years since our attention was directed to the raising of plants from leaves, from seeing that the leaves of the *Bryophyllum calycinum*, that fell from the plant, and rested on the soil of the pot, instead of withering up, ere long presented a perfect colony of young plants all round the edges of the leaf. When the leaf was divided into several parts, the young little plants came also from the cut parts, but not so freely as from the edge of the leaf. The leaf of this plant is thick and succulent, and endowed with a wondrous power of reproduction. This fact observed led to many experiments with leaves, which were deeply interesting to me then, but which would not be generally interesting now.

As a general rule, thick, fleshy, succulent leaves, that form a fleshy underground stem or root, or bulb or tuber, are the best for this purpose. Without these conditions there is little difficulty in forming roots, but there is next to an impossibility in getting these roots to form buds so as to secure a plant. Thus we have rooted Vine, Cucumber, and Melon leaves, &c., in abundance; but when the leaf decayed, the roots also began gradually to decay, without forming a bud as the embryo of a future shoot.

There is no great difficulty in getting leaves of the succulent Scarlet Geraniums to fill small pots with roots, but I was not successful in getting plants from them. Our good friend, Mr. Beaton, has told us how to raise such Scarlet Geraniums from leaves. But I rather suspect there was a little bit of the stem along with the base of the leaf; and therefore, if that were the case, the increase in plants was owing to propagating by leaves and buds united, rather than by leaves alone. I have found much the same thing in Dahlias. The leaves will root freely enough, and that without forming any tuber; and even when a tuber is formed, it is seldom that fertile buds will be formed on it. When the leaf was cut off, however, with a small piece of the stem at its base, and thus enclosing in its axil an embryo bud, small tubers would be formed, and a shoot would be produced. My impression is, that we can hardly be guided by analogy as to what leaves may or may not be successfully treated for raising young plants, until we actually try them by experiment. Next to the Bryophyllum, the Gloxinia, the Gesnera, and Begonia may be most successfully raised and propagated by their leaves; and those with the thickest, most succulent leaves may be most depended on. Those, also, that have a sort of corm-tuber, or underground fleshy stem, will be the surest to succeed. I will shortly describe three modes of propagation, and leave it to your own judgment and circumstances to decide which plan will suit you best.

The first is the best and easiest mode for securing strong, healthy plants from leaves, when you wish to have merely one plant from a leaf. In this case select leaves of small size rather than large—say about half their full size; slip them off close, or near, to the stem with a sharp knife, and allow the cut to get dry by exposure, while the top of the leaf is kept moist and shaded to prevent it flagging at all. Then prepare four or five-inch pots, by filling them half full of drainage; then put in a little sandy loam and peat; and over all fully one inch of silver sand, pressed down pretty closely. Insert these leaves by fixing their stems close to the sides of the pot, and the leaves leaning towards the centre, and settle them by watering. If the leaves are topheavy put a small stick in the centre of the pot to keep them up. It is to guard against this that we advise rather small but firmish leaves in preference to older ones. Water so as to fix all in their place firmly, and then put the pot, or pots, where they will receive a close, moist, shaded heat. After March or April, the leaf-cuttings will do in the shaded, close part of a hothouse at work, such as placing them behind a large pot, and damping the leaves occasionally during the day without saturating the soil. A hot-bed, however, would be the best place for them; and if a moist, close, shaded-from-bright-sun heat is given them, no bell-glasses or hand-lights will be wanted, and strong tubers may be expected before the end of the summer, which, after being rested a little, will grow strongly next season whenever they are excited by heat and moisture.

The second plan is a medium between the first and the third, and by which it is desirable to get some half dozen or more plants from a leaf. In this case the pots are prepared in a similar manner; only the surface of the pot must bear some proportion to the size of the leaf when laid flat down over the sand. The practice may be so managed that one leaf may cover the surface of the pot; or several leaves may be laid down on the sand on the surface of a larger one. In this case the leafstalk is cut within an eighth or a quarter of an inch of the base of the leaf. You then turn the lower side of the leaf uppermost, and with your knife make a number of incisions where the large veins meet and cross each other—say from five to ten cuts on a good-sized leaf. The cuts are just notches, as it were, on the chief and subsidiary midribs. The short stump of the leafstalk is then inserted obliquely close to the side of the pot, whilst the under side of the leaf lies close on the sand. To keep the notched parts especially close to the sand, the leaf is kept down by putting some very small wooden pegs through the leaf and into the sand. We prefer them smaller than ladies' hair-pins. We frequently also let a dust of sand lie over the cut parts on the upper side of the leaf. Moisture is given to settle all. The tuber from the stalk end of the leaf will generally be the largest; but mostly fine, healthy little tubers will be formed at every notched part, and even at times on places not notched. These pots must have rather more attention given as to a close, shaded, moist atmosphere; but taking care that extra moisture is not given, or the leaf will be apt to decay. If the leaves get extra dry they are apt to shrivel up before the small tubers are formed. A hotbed or hothouse will do for this plan as well as the first; but placing the pots together under a handlight will enable you to give them a moist atmosphere by day; and giving air at night by tilting the glass will guard against the evils of damping.

The third plan will enable you to make many plants out of a leaf; and though presenting no difficulties in the first stages, requires more attention afterwards to command success. For instance: take a fair-sized leaf of a Gloxinia; run a sharp knife up the centre of its midrib, thus dividing it in two; then begin at the midrib, and cut the half leaf from what was the centre to the side into little narrow pieces—say from an eighth to a quarter an inch in width, and an inch or so in length; do the same with the other half; and these strips will just be so many cuttings. In a large leaf, such as some of the fine-marked-foliaged Begonias, you may make several centres from the larger subdivisions of the leaf. Even this is not absolutely required, as I have cut a leaf at random into pieces, and these pieces grew. Still, just as in cuttings in general, we cut to a joint, because, among other reasons, we believe that the vital principle is more active there than in the spaces between the joints, so we have an idea that the vital powers are more likely to be active at the chief and subsidiary ribs of the leaf than in the open spaces; and therefore we prefer that part to be at the base of the portion we insert in the sand of the cutting-pot. More care is required to succeed by this plan; and a hotbed, sweet bottom heat, and bell-glasses for each pot are more necessary. If the little tiny bits are kept too dry, or if the sun strikes them powerfully, they will shrivel and bid you good-bye; and if kept too moist, and the air too confined, they will rot and fade away. Great care, therefore, will be required to give them a stimulating heat, a closeish atmosphere, and shade from bright sun during the day; and to prevent damping, edge up the side of the bell-glass a little at night. The extra pains will be well repaid in the pleasure of thus securing a great number of little tubers of a desirable variety, most of which will bloom the following season after being duly ripened and rested.

I will only add one word more. The Gloxinias and Gesneras mostly like a period of complete rest—that is, next to perfect inaction for several months in the year. During that period, after the tops die down and are withered, the soil should be dryish, not dust dry, and the temperature cool, but not below 45° for any length of time. Young small tubers should be kept moister and warmer the first year. When either begin to grow, then is the best time to shift them into heated, well-aired soil. The soil most suitable for young plants is sandy heath soil, and a portion of sweet, well-decomposed tree leaves. As the tubers advance in age add a portion of fibry loam and very rotten cow-dung. The fleshy-rooted Begonias may also be kept dryish and low in winter, but not so dry and low as Gloxinias. Of course, those intended to bloom in winter must be kept in a warm, moist atmosphere.

R. Fish.

CAN A ROSE BE ALTERED BY ITS STOCK?

I expect you will laugh at me and say I have been humbugged. But is it possible?

Two years since a neighbouring brother clergyman brought

me a cluster of *Lamarque* Noisette Rose; it was magnificent. Within half an hour I had taken buds from the stem and had inserted them in the shoots of a strong-growing, climbing Rose, —a dark crimson with imperfect flowers, the name of which I do not know. I fastened a label below one of the buds; no other bedded stock stands near. The buds took. Last year there were shoots from two to three feet long. I have been to the tree this week, and find to my astonishment a large, full-leaved, dark Rose—the unexpected result! A side-stem bears flowers of the original stock, while my anticipated *Lamarque* is gone. You will say, "all a mistake." If so, it is more incomprehensible than ever; for I remember, or seem to remember, the whole circumstances as clearly as I hope to remember an hour hence that I have written to you now.—Karl.

[We can give no explanation of the supposed change, but many stranger things are let loose on the world of gardening, from time to time, than that a *Lamarque* Rose should turn to a dark Rose from having been budded on a high-coloured stock.]

THE SCIENCE OF GARDENING.

(*Continued from page* 231.)

No seed ever attains the power of germinating unless the pollen from the stamens in the same, or some nearly-allied flower, has reached and impregnated its pistils. This was known to the most ancient of the Greeks; for Herodotus relates that the cultivators of the Date (*Phœnix dactilifera*) brought the flowers of the barren plants, which they called the males, and attached them to the fruitful trees, that their produce might not fall without attaining maturity—a phenomenon explained both by Anaxagoras and Empedocles, who flourished in the fifth century before the Christian era, by claiming for vegetables the same sexuality as animals. Subsequent researches have established the fact beyond the reach of reasonable doubt.

In favourable seasons, when genial warmth and gentle winds prevail, impregnation is readily affected by the plant's own provision. The pollen is never shed from the anther of the stamen until the stigma of the pistil is fully developed; and this soon withers after the contact. The gaping of the stigma when the pollen is about to fall, and at that time only, may be observed in the Heartsease (*Viola tricolor*); and every morning, on the summit of the stigma of the Jacobean Lily (*Amaryllis formosissima*), a drop of viscous liquid protrudes, to be re-absorbed as regularly at noon, with the pollen shed upon it, until impregnation is completed: the drop then exudes no more. But, as was first observed by Sir J. E. Smith, the process, as it is effected in the Barberry (*Berberis vulgaris*), is the most curious. In the flowers of this shrub the six stamens, spreading moderately, are sheltered under the concave tips of the petals until some extraneous body—as the feet or trunk of an insect searching for honey—touches the inner part of a filament near the bottom. The irritability of that part is such that, contracting and thrown forward spasmodically, it dashes the anther, full of pollen, against the stigma.

The above are only a few of the modes by which the plants are, by their own powers, enabled to effect the impregnation of their seed; but where there is any more than ordinary difficulty their all-provident Creator has invariably provided efficient assistance. The agents usually called in are insects: these, in their search after honey and pollen, visit the inmost recesses of flowers, and bear from the anthers to the stigma, and from flower to flower, the fecundating dust. Here, too, we may remark upon another instance of that Providence which makes all things fitting and appropriate; for those who have made the bee their study relate, that though this insect does not confine itself to one species of flower, yet it restricts its visits during each ramble to that kind which it first visits. How this facilitates impregnation is obvious, when it is remembered that no flower can be fecundated but with pollen from a kindred species.

The most remarkable instance of the agency of insects, and of the artifice, if the term be permissible, employed to render them efficiently serviceable, occurs in the *Aristolochia Clematitis;* and is thus described by Willdenow. The corolla is tubular, terminating in a globular extension at the base. The tubular part is lined with stiff hairs, pointing downwards, like the wire entrance to some mouse-traps. The globular part contains the pistils, surrounded by the stamens; but the latter being very much the shorter, and as the flower always holds itself erect, the pollen cannot reach the stigmas, but would fall to the bottom of the corolla if it were not for the agency of a particular insect. This diminutive visitant is the *Tipula pennicornis*, which, entering the tube in search of honey, in vain tries to repass the phalanx of hairs which easily yielded to it an entrance; in its search for a way of escape it carries the pollen to the stigma, and, impregnation being effected, the hairs lose their rigidity, sink to the side of the tube, and the prisoner easily escapes.

The efficient agency of insects suggested that in hothouses, from whence they are almost totally excluded, other artificial means might be adopted with success to render fertile flowers that had hitherto failed in producing seed. One of the earliest instances on record of the experiment being tried with a prosperous result was on the *Abroma augusta*, which had bloomed unfertilely for several years in a hothouse at Berlin. The gardener by the aid of a hair pencil applied a little pollen to the stigma, and for the first time perfect seed was produced from which plants were raised. This practice is now very generally adopted to all plants cultivated under glass from which a produce of either fruit or seed is desired; for fruit rarely attains its full size if the seeds within are unfertilised. Thus the gardener always finds the advantage of using the camel-hair pencil to apply pollen to the stigmas of his forced Melons, Cherries, and Peaches.

That seed can be rendered fertile by the agency of other flowers than their own parent flower has long been known; for it had come within the observation of the Israelites some 3400 years now past, as may be gathered from Deut. xxii. 9; Jer. ii. 21; and Lev. xix. 19; but it was not rendered useful knowledge until the late President of the Horticultural Society, Mr. Knight, commenced his experiments in 1787. Mr. Bradley, seventy years before, had demonstrated that hybrid plants may be grown partaking of the qualities of both their parents; but to Mr. Knight first occurred the happy thought that the good characteristics of one parent might thus be employed to correct deficiencies which would otherwise occur in the offspring of another parent of the same species. Since his time this system of cross-breeding has been practised by gardeners upon almost every genus of plant that comes under their care, and by its agency the size, colour, and form of flowers have been improved and varied; the magnitude and flavour of fruits have been increased; and tender plants have been made to bring forth a hardy progeny.

Bradley had only carried out the suggestions of others; for both Lawson and Evelyn, half a century previously, had related that new Apples *ad infinitum* might be raised from kernels; and Bacon, whose penetrating eye pierced the most dark recesses of Nature, had observed that "The compounding and mixture of plants is not found out, which, nevertheless, if it be possible, is more at command than that of living creatures; wherefore, it were one of the most noble experiments touching plants to find this out; for so you may have a great variety of new plants and flowers yet unknown. Grafting doth it not: that mendeth the fruit, or doubleth the flower; but it hath not the power to make a new kind." Our own observations, and those of others, justify the following statements as affording some guide to the raiser of varieties:—

1. The seed-vessel is not altered in appearance by impregnation from another plant; therefore, no hasty conclusion of failure is justified by that want of change.

2. The colour of the future seed, not of that first hybridised, seems to be most influenced by the male plant, if its seeds and flowers are darker than those of the female. Mr. Knight found that when the pollen of a coloured-blossomed Pea was introduced into a white one, the whole of the future seeds were coloured. But when the pollen of a white blossom was introduced to the stigma of a coloured blossom, the whole of the future seeds were not white. Captain Thurtell, from his experiments on the Pelargonium, also informed us that he always found the colour and spot of the petals to be more influenced by the male than by the female parent. Indeed, all experience proves that the progeny usually, though not invariably, most resembles in colour the male parent.

3. Large stature and robustness are transmitted to the offspring by either parent. It does not absolutely matter, for obtaining this characteristic, whether it be the male or female which is large; but Mr. Knight generally found the most robust female parent produced the finest offspring.

4. Captain Thurtell, from lengthened observation and experiment, ascertained that *the form* of the petals in the Pelargonium follows most closely that of the female parent.

5. Mr. Knight says that the largest seed from the finest fruit that has ripened earliest and most perfectly should always be

selected. In stone fruit, if two kernels are in one stone these give birth to inferior plants.

6. The time which elapses before seedlings attain a bearing age is very various. The Pear requires from twelve to eighteen years; the Apple, five to thirteen; Plum and Cherry, four to five; Vine, three to four; Raspberry, two; and the Strawberry, one.

7. The most successful mode of obtaining good and very distinct varieties is to employ the pollen from a male in a flower grown on another plant than that bearing the female parent. To avoid previous and undesired impregnation, the anthers in the female parent, if they are produced in the same flower with the pistils, must be removed by a sharp-pointed pair of scissors, and the flower enclosed in a gauze bag to exclude insects until the desired pollen is ripe. Another effectual mode of avoiding undesired impregnation is bringing the female parent into flower a little earlier than its congeners, and removing the anthers as above described; the stigma will remain a long time vigorous if unimpregnated.

8. Although the fertility of all the seed in one seed-vessel may be secured by applying pollen only to one style, even where there are several, yet the quantity of pollen is by no means a matter of indifference. Koëlreuter found that from fifty to sixty globules of pollen were required to complete the impregnation of one flower of *Hibiscus Syriacus;* but in *Mirabilis Jalapa* and *M. longiflora*, two or three globules were enough (*Willdenow*, 323); and in the case of Pelargoniums, Captain Thurtell says two or three globules are certainly sufficient.

9. M. Haquin, a distinguished horticulturist at Liège, has impregnated flowers of the Azalea with pollen kept six weeks; and Camellias with pollen kept sixty-five days. He gathers the stamens just previously to the anthers opening, wraps them in writing-paper, places them in a warm room for a day, collects the pollen they emit, and preserves it in sheet-lead in a cool, dry place. M. Godefroy suggests that two concave glasses, like those employed for vaccine virus, would be better. The globules of the pollen must not be crushed. M. Haquin thinks the pollen of one year will be effective if preserved until the year following. Mr. Jackson, of Cross Lanes Nursery, near Bedale, says he has found the pollen of the *Rhododendron Smithii tigrinum* retain its fertilising power even for twelve months.

10. It is easy to discern whether impregnation has been effected, as in such case the stigmas soon wither. The stigmas which have not received the pollen remain for a long time green and vigorous. By the aid of the Stanhope lens Captain Thurtell thought he could discover the seed of the Pelargonium being closed over in the space of four hours after impregnation.

11. When double flowers are desired, if a double flower should chance to have a fertile anther or two, these should be employed for fertilisation, as their offspring are almost sure to be very double.

12. Many analyses of the pollen of various plants have been made by chemists without throwing any light upon hybridising. M. Grotthus found the components of twenty-six grains of the pollen of the Tulip were:—

Vegetable albumen	20·25
Malates of lime and magnesia	3·50
Malic acid	1·00
Malate of ammonia Colouring matter Nitrate of potash	1·25
	26·00

—(*Schweigger's Journ.* xi. 281.)

13. Superfœtation has been doubted, but as it occurs in the dog, we see no reason for disbelieving its possibility in plants. Captain Thurtell thinks it may be done by the bee introducing mingled pollens at the same instant. Then why not, if a similar mixture is inserted by the camel's-hair pencil of the cultivator? We think it quite possible that different seeds in the same pericarp may be fertilised by pollen from more than one different male species; but nothing but the strongest evidence will convince us that the same seed can be effectually fertilised by more than one pollen. M. Foulard asks us to believe that his *Rosa perpetuosissima* had four male parents—the Bengal, the Tea, the Hundred-leaved, and the Noisette!

14. Plants nearly related—that is, closely similar in the structure of their various parts, are those only which will *immediately* impregnate each other; but it is impossible at present to say what families of plants may or may not be brought into fertile union through intermediate crosses. A very short time ago the Azalea and Rhododendron were thought incapable of such union, but this opinion is now exploded; for *Rhododendron Ponticum* has been fertilised with the pollen of *Azalea sinensis*, and the progeny between that evergreen and this deciduous shrub is the previously unknown phenomenon a yellow Rhododendron. Though such union may be effected, we entirely agree with Mr. Knight in anticipating that the progeny will be mules, incapable of producing offspring. It is quite true that many plants, said by botanists to be distinct species, have between them produced fertile seeds, but we incline decidedly to the opinion that this fact demonstrates that they are not distinct species, but only deviations from a common origin. For example: the Peach and Almond are considered distinct species by botanists, yet the fruit of both and of the Nectarine have been borne spontaneously by the same tree. "I cannot," says Mr. Knight, "by any means admit that plants ought to be considered of originally distinct species merely because they happen to be found to have assumed somewhat different forms or colours in an uncultivated state. The genus *Prunus* contains the *P. Armeniaca*, *P. cerasus*, *P. domestica*, *P. insititia*, *P. spinosa*, *P. Sibirica*, and many others. Of these I feel perfectly confident that no art will ever obtain offspring (not being mules) between the *Prunus Armeniaca P. cerasus*, and *P. domestica;* but I do not entertain much doubt of being able to obtain an endless variety of perfect offspring between the *Prunus domestica*, *P. insititia*, and *P. spinosa;* and still less doubt of obtaining an abundant variety of offspring from the *Prunus Armeniaca* and *P. Sibirica*. The former (the common Apricot*) is found, according to M. Regnier, in a wild state in the oäses of Africa. It is there a rich and sweet fruit of a yellow colour. The fruit of *Prunus Sibirica*, seeds of which came to me last year from Dr. Fischer, of Gorenki, is, on the contrary, I understand, black, very acid, and of small size: but, nevertheless, if these apparently distinct species will breed together, and I confidently expect they will, without giving existence to mule plants, I shall not hesitate to pronounce these plants of one and the same species, as I have done relatively to the Scarlet, the Pine, and the Chili Strawberries. Botanists may, nevertheless, if they please, continue to call these transmutable plants species; but if they do so, I think they should find some other term for such species as are not transmutable, and which will either not breed together at all, or which, breeding together, give existence to mule plants.

"If hybrid plants had been formed as abundantly as Linnæus and some of his followers had imagined, and such had proved capable of affording offspring, all traces of genus and species must surely long ago have been lost and obliterated; for a seed-vessel, even of a monogynous blossom, often affords plants which are obviously the offspring of different male parents; and I believe I could adduce many facts which would satisfactorily prove that a single plant is often the offspring of more than one, and, in some instances, of many male parents. Under such circumstances, every species of plant which, either in a natural state or cultivated by man, has been once made to sport in varieties, must almost of necessity continue to assume variations of form. Some of these have often been found to resemble other species of the same genus, or other varieties of the same species, and of permanent habits, which were assumed to be species; but I have never yet seen a hybrid plant capable of affording offspring which had been proved by anything like satisfactory evidence to have sprung from two originally distinct species; and I must, therefore, continue to believe that no species capable of propagating offspring, either of plant or animal, now exists which did not come as such immediately from the hand of the Creator."—J.

(*To be continued.*)

COMMON FLOWERS.

PLANTS with small flowers of lowly growth often please the eye and enlarge the mind more than tall plants with flowers of far more gorgeous pretensions. The *Veronica repens* (more commonly called *V. tenella*), is an especial favourite with me. Its

* The early period at which the Apricot unfolds its flowers, leads me to believe it to be a native of a cold climate; and I suspect the French word Abricot, the English Apricock, and the African Berrikokka, to have been alike derived from the Latin word præcocia, which the Romans (there is every reason to believe), pronounced Praikokia and which was the term applied to early varieties of Peaches, which, probably, included the Apricot. The Greeks also wrote the Latin word as I suppose the Romans to have pronounced it.—*Harduoin's Ed. of Pliny, lib.* 15, *sec.* xi.

small pale blue and white flowers never fail to please, and when out of flower its small green leaves seldom look unhealthy. It is a plant well adapted for the rockery and front of the mixed border. In the latter situation I have seen it in full flower plots measuring more than a yard across. It is easy to propagate; small pieces inserted in the open ground rarely fail to grow, and it is one of those plants that ought not to be cut away at the edges. If it be so treated it is liable to die away in the centre of the plant, and grow in patches and look unsightly; it then requires the earth to be changed or to be planted in a fresh situation.

The cold, ungenial summer has been much against the flowering of *Sisyrinchium anceps*. This plant, like many other beauties, shows to best advantage in bright sunshine. If the weather be in the least cloudy, the flowers will shut up and remain closed till finer weather; but even with this fault, it is a plant well worth growing in the front of the mixed border. Those who possess this plant and desire to increase their stock, will find that the smallest pieces with a single root-fibre will grow and make a plant. With me it grows from self-sown seeds like hay seeds, and may easily be mistaken for grass, by those who do not know the plant.

The *Eranthis hyemalis* (Winter Aconite) did not flower with me this spring. I had not a single flower, and the roots have not been moved for several years. One of my neighbours has a bed four yards long and a yard wide, and he had only four blooms. I should like to know if others have been in a similar situation.—Rustic Robin.

OIL AS A DESTROYER OF THE SCALE INSECT.

In one of your late numbers I noticed sweet oil recommended as a cure for scale, &c., and having some plants much troubled with aphides, I immediately applied it to them; but I fear with poor success, as, although the insect seems killed, the leaves are also dead. The fronds of *Adiantum formosum* and *A. moritylianum* which were oiled seem quite injured likewise. The young shoots of some out-door Roses which were covered with aphides would, I hoped, be benefited; but the leaves are now crisp, black, and dead. A small Acacia tree was some time since attacked with scale. After washing the stems with oil it looked better for a time, but the lower leaves are now falling off. They turn yellow and drop in showers if the tree be slightly shaken. It is kept in a vinery where the Grapes are going off very much. Two months ago they looked promising, and with the exception of four *Barbarossa* Vines, were laden with fruit (on the latter there was but one small bunch). The Grapes now, chiefly *White Tokays*, seem failing; the berries turn brown and rotten, and do not swell properly. We have washed the pipes for some time with sulphur, but they do not improve. Can you assign a reason for their failure, and is it too late to save them this season? We have a Passion-Flower that never flowered: it had been kept in a hot greenhouse or vinery, but we have now planted it on a south verandah. Do you think it will be more likely to bloom in these situations, and, when pruned, what time of year is best? Would you also inform me whether *Maurandya Barclayana* and major Convolvolus will flower in the winter in a greenhouse, and is so, what time should seeds be sown to insure their flowering early?—Philanthos.

[Sweet oil is not suitable for destroying the green fly or aphis, but only the scale insects. If it is sweet oil, *true*, it will not hurt the tenderest leaf in careful hands. If you had tested it, as we directed, on a Geranium leaf or leaves, you would know the difference and danger of your mixture of some horrid stuff which you bought for sweet Olive oil; and if you had read more carefully, you would have known that the application was not intended against aphides; nor should the entire surface of any leaf be oiled. Try better oil on those mealy bugs on the Apple trees to the right, as you go into Worcester from your residence, and let us hear the result. A vinery with *Tokay* and *Barbarossa* Grapes, or *Muscats*, ought to have had the pipes, or flues, going every day from the 10th of last May to the 1st of July, and on to eight or nine o'clock in the evening, so as to counteract the chill and cheerless weather we had in that time. But why did you use sulphur if you did not see mildew? and if you saw mildew you ought to have told us. Sulphur is just as dangerous among all kinds of plants as gunpowder is among animals. Your crop is done for this year, we fear. There is only one kind of Passion-Flower that will bloom out of doors, and it should be pruned in April like Tea Roses. None of the Maurandyas, and no one of the Convolvuluses will flower in a greenhouse in winter. Sow, or raise, at any time, or in any manner whatever.]

SPERGULA PILIFERA—CRINOLINE POTS.

Since I read your article in The Cottage Gardener on "Spergula, Crinoline Pots, &c," I have, by Mr. Summers' permission, had the pleasure of walking and talking over the lawns, and also of looking closely into the shape and the way in which his crinoline pots are constructed, and the growth of the root and branch of the kinds of plants cultivated in them. It is now nearly four years ago that I saw, for the first time, the first lawn formed of *Spergula pilifera* that I ever heard of. I have seen it a great many times since that, both in summer and winter, and on the 23rd of last month I could not perceive that it had even increased a quarter of an inch in thickness since I first saw it: but I find that it still retains that verdant freshness which at all times makes it an attractive object in the garden or pleasure-ground.

I have been informed that during the past two years that many have tried hard to cultivate the said plant successfully; but unfortunately they have been misguided I fear, by those who should have known better than to advise purchasers to sow the seed in pots, pans, frames, hothouses, or in some secluded, densely-shaded corner of the garden; so that I am not at all surprised to hear reports of failure as the result of their experiment.

I have seen it grown and doing well in different parts of England. One plot worth notice was in Mr. Pince's nursery at Exeter. It looked exceedingly well, and should by this time, if it has been rightly managed, be well established, and worthy to be compared with the lawns at Forest Hill, under the superintendence of Mr. Summers, of the Crystal Palace Nursery, Sydenham.

I have in my charge here, where the soil is light sandy loam, a plot planted with *Spergula pilifera*. It has been laid down about five months, and some pieces that were planted just as they came from the nursery have pushed shoots four inches long; but others that I divided into very small patches were so injured that they have only just now made a start. But if *Spergula pilifera* should not cover our light, sandy soil so fast as we could wish, it is a consolation to know that the proprietor of the Crystal Palace Nursery possesses another species of Spergula, well adapted for any soil, whatever may be its nature; and any who visit his nursery with their eyes open, will soon see what species is best adapted for their particular kind of soil or situation.

I must confess I am quite a convert to what Mr. Summers is pleased to call "crinoline pots," for many kinds of plants, especially for Fuchsias, Achimenes, Ferns, Gesneras, and many kinds of Orchids; but I fear that such plants as Heaths, Pimeleas, Leschenaultias, and others, would not be benefited much by a crinoline. I cannot see how their roots are to be kept in a uniform state.

Ferns of nearly every description are cultivated in them by Mr. Summers. By-the-by, he has the outsides richly furnished with rare kinds of Selaginella, and I must say they are highly interesting objects grown in this way.

As some of Mr. Summers' experiments are only in their infancy, perhaps I cannot do better than to wait patiently to hear the result, and say little more about them now. Probably, when his plans are matured, we may have the pleasure of hearing that he has ways and means of keeping any kind of plant in perfect health and beauty, as some of his Fuchsias, Ferns, &c., are at present. Let us hope soon to learn that success is the result of keeping plants in crinoline.—J. Moon, *Pelham, near Canterbury*.

WHAT TO LOOK FOR ON THE SEASHORE.

(*Continued from page* 186.)

CHAP. IV.—JELLY FISH, OR SEA JELLY.

The next order of Radiated Polypes to which we have to direct attention is a large family of strange creatures which may be generally denominated Jelly Fish, or Sea Jelly; they are frequently called Medusæ, or Gorgons' Heads: this classical title having been given them from their organs of motion being spread out like the snaky hair of the fabulous Medusa. They are also called Acalephes, from a Greek word signifying a Nettle; some

of the species having the power, on being handled, of causing a pungent and burning pain similar to that produced by the leaves of that most unpleasant herb after which it is named. But as *all* the species are not possessed of this stinging property, it is manifestly incorrect to apply the title of "Sea Nettles" to the family in general. Again, they are called Sea Blubbers, from their peculiar appearance; but, as before stated, it is, perhaps, better to bring the whole class under the simple and common denomination of Jelly Fish.

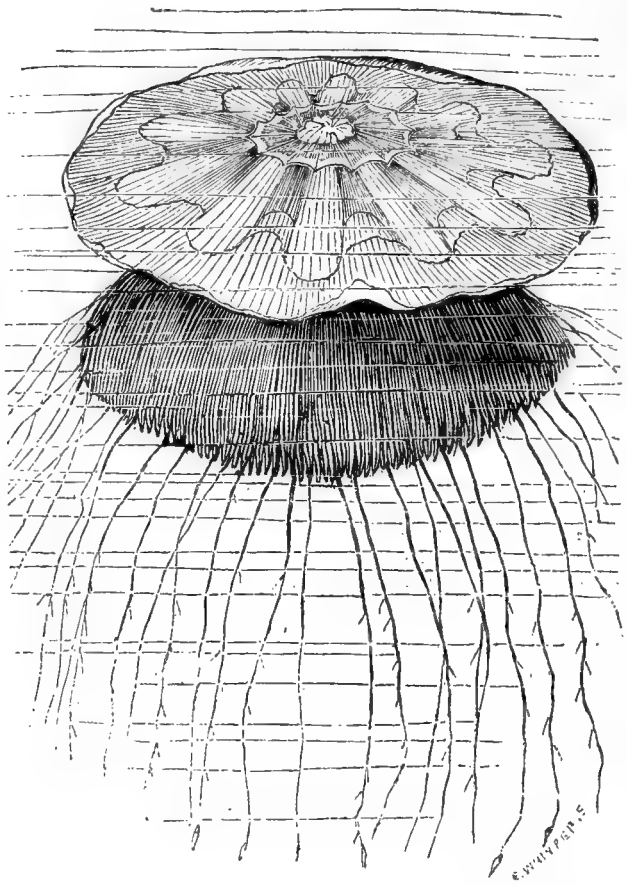
The history of these strange creatures is unfortunately still very imperfect. They are, of course, treated of more or less extensively by all writers on marine zoology; but they have no special historian of their own, if we except Professor Forbes, whose "Monograph of British Naked-eyed Medusæ" is a very able and entertaining work. For this reason any attempt at a detailed and elaborate account of their numbers, orders, distinct formation, habits, or peculiar characteristics, would be necessarily imperfect, and consequently unsatisfactory. Enough, however, may be gathered for the tourist to identify the creatures when he meets with them, and to satisfy his curiosity on their general structure and character.

The Jelly Fish, then, may be described generally as animals of a transparent gelatinous substance; masses of which may be seen on the seashore, where they have been thrown by the waves, and which lie there inert and motionless during the ebb, as they can only move by contraction and expansion in the water. To contemplate this mass, the observer would with difficulty believe the beauty of form and colour peculiar to each individual member of it when carefully examined. The amount of solid matter, however, contained in the tissues is incredibly small. The greater portion of their substance appears to consist of a fluid differing in a very slight degree from the sea water itself; and if this be drained away, so extreme is the tenuity of the membranes which contained it, that the dried residue of a Jelly Fish, weighing originally two pounds, was found to weigh only thirty grains. The most common form of these animals is that of an umbrella or Toadstool—that is, they have a broad, convex-circular disk of a gelatinous substance, mostly clear and colourless, but occasionally resembling ground glass in its semi-opaqueness, and sometimes tinted with the most delicate colours. From the under surface, or "sub-umbrella," as it is called, commonly depends a fleshy mass, resembling the stick of the umbrella, or stalk of the Toadstool. This differs in form; sometimes being found long and slender, but more frequently short and thick. It usually terminates in four expanding triangular lips, occasionally furnished with long tentacles. The centre of these lips is the mouth, leading to the stomach, which is a cavity in the upper portion of the fleshy mass mentioned, and where the food is digested. Slender vessels radiate from this cavity across the under surface of the umbrella-like disk to the circumference, where they open into another vessel, which runs completely round the margin. In all these vessels the nutritive fluid circulates from the stomach, which may be satisfactorily seen on examining them by the aid of a microscope.

In some species the sexes are separate; others appear to be bisexual. Traces of a nervous system are present, at least in some; although organs of sense, except certain appendages which serve for feeling, are absent in many, if not most of them; whilst others have in addition parts which some authorities consider to be organs of sight, others organs of hearing. How long a period is requisite for their full growth and development is unknown, but it is manifestly an error to ascribe to them in general a short duration of life and a rapid growth, or even to name them annual animals. Some species are able to bear the loss of parts; but these when removed do not continue to grow.

The Jelly Fish is met with in all seas. A very considerable number belonging to the most different orders are found in the Mediterranean. Some species are widely diffused, as the Eared Medusa (*Medusa aurita*); the Hairy Medusa (*Cyanæa capillata*). The first has been found in the Red Sea, and no difference was discovered in it and those met with in the North and Baltic Seas. Oftentimes many varieties of Jelly Fish collect in such quantities at certain places, that they form, as it were, banks in the sea, which it requires days to sail through; and I have been told by a friend who was an eye witness of the fact, that in the summer months the immense harbour of Halifax, in Nova Scotia, presented one vast and connected mass of them. These are mostly of the stinging species, as he was cautioned against handling them. In fine, calm weather the Jelly Fish come to the surface, but during a storm they seek the quieter waters of the depths.

The stinging property peculiar to certain members of this family, and which has gained for them the denomination of Sea Nettles, is caused by minute threads situated on the surface of the skin. This is plainly demonstrated from the fact, that in those species not possessed of this obnoxious quality no such threads are discoverable. However, the effect can scarcely be considered to arise from a purely mechanical cause: it is most probable that there is an acrid fluid, the precise nature of which has not been ascertained, secreted by the cells and imparted to the threads.



Professor Forbes gives an entertaining sketch of the stinging Medusæ, which we shall give in his own graphic words:—"Among them (Acalephes), *Cyanæa capillata* of our seas is a most formidable creature, and the terror of tender-skinned bathers, with its broad, tawny, festooned, and scalloped disk, often a full foot or even more across. It flaps its way through the yielding waters, and drags after it a long train of riband-like arms, and seemingly interminable tails, marking its course when the body is far away from us. Once tangled in its trailing hair, the unfortunate who has recklessly ventured across the graceful monster's path, too soon writhes in prickly torture. Every struggle but binds the prickly threads more firmly round his body, and then there is no escape; for when the winder of the fatal net finds his course impeded by the terrified human wrestling in its coils, he, seeking no combat with the mightier biped, casts loose his envenomed arms and swims away. The amputated weapons severed from the parent body vent vengeance on the cause of their destruction, and sting as fiercely as if their original proprietor itself gave the word of attack."

This very singular property appears to be shared by animals of a very different structure. For instance: on the Mangroves at Botany Bay are found great numbers of small green caterpillars; their foreheads are thick-set with hairs, and they range themselves on the leaves side by side, like a file of soldiers, to the number of twenty or thirty together. The hairs of their bodies have the quality of a Nettle, and inflict on those incautious enough to meddle with them a pain equally acute, although not so durable.

Other peculiarities of the Jelly Fish, together with a more detailed account of the orders into which they are commonly divided, must be reserved for the following chapter.—W.

(*To be continued.*)

CYCLAMENS GROWING PREMATURELY—HEDAROMA TULIPIFERA CULTURE.

About the middle of May last I bought from Messrs. E. G. Henderson & Son the ten best of *Cyclamen Persicum* recommended by Mr. Beaton. Some came to hand with leaves and some without, but all in pots and safe. I immediately tipped them out of the pots and plunged them in a border in my garden carefully with the soil they grew and came to me in,—western aspect; and I now beg to ask you what I am to do with them, as they all, with and without leaves as above, are pushing out new leaves; and I understood Mr. Beaton to say, I must look out for leaf-growth in August, and up with them that day. But mine have not rested, hence my dilemma.

I have also a beautiful plant of *Hedaroma tulipifera*, eighteen inches high by twelve inches through. Grows amazingly in excellent foliage, but has never made a flower-bud. How am I to ripen the wood?—in the greenhouse, or in a pit (north aspect), with Heaths, or under tiffany with my Camellias?—John Turner.

[We have a few Cyclamens going just the same way, and twice before this we noticed the same thing; and we believe it arises from the bulbs not having done well the previous winter. They did not flower earlier from leafing so soon; and in two years they fell into their natural rest at the proper time. The method of turning them out is a legacy from the last generation, and was first made known by Mr. Wilmot, over thirty years back, and we have followed it ever since with success.

Your Hedaroma has lost no time yet. We know where it receives the same treatment as the Chinese Azaleas, a little extra heat after flowering and pruning. Also, where it is managed like a Heath, and both seem equally suited to it. The best place to ripen it off in the autumn is on the front shelf of a greenhouse, the pot being plunged inside a larger pot.]

THE DURABILITY OF TIMBER.

Although this is not, perhaps, the proper place to discuss this matter, it, nevertheless, is one interesting to all who plant trees, so that a few remarks may be here acceptable, confining our observations to such timber or trees as are of home growth, for it is only such that we have anything to do with; and as there are many purposes to which durability is of the most vital importance, it would be well to consider which kind of timber really possesses that qualification in the greatest degree.

In the first place, we may inquire what position the timber is to be placed in, for this materially determines the kind proper to be used. And if it were asked what position it is likely to last the greatest number of years in, I have no hesitation in saying that my firm belief is that it would be preserved longest under fresh water; or perhaps a peat bog has a like preserving quality, as is witnessed in the logs of wood frequently dug out of such places in a perfectly sound state, but stained by their contact with the substance they have been so long imbedded in. But the ocean is certainly not the best preserving liquid—at least it is not so in all parts, for the shipworm plays sad havoc in many seas. But this is not our department; and an adjournment from these watery regions to one more congenial, and one where the durability of timber is of more consequence in the various purposes to which it is put to in building; and here we enter the field in which so much dispute has already taken place. Even now parties are not agreed which is the most important wood to select for this purpose, but as we have in England examples where home-grown timber has stood the test of a number of years, it is only fair to point to these examples, and in doing so, all readers of our country will expect the Oak to be pointed at as being the most valued and most used.

Certainly, a few years ago it was bruited forth that Westminster Hall was roofed with Chestnut; but this has since been denied, and Oak is generally admitted as the timber used; but there are, unquestionably, some churches roofed with Chestnut, but they are confined to some of the southern counties, and are not of the oldest class. In fact, it is questionable whether the Chestnut existed in our primitive forests at the time our oldest buildings were erected; or, if it did, it certainly was not so plentiful as its more robust neighbour "the Oak." And if it had the same fault then as it has now (and there is every reason to believe it had so), it is easily to account for it being rejected, for there are few large trees but what do *cone*, as it is called; which is, when the tree is cut up, the ligatures which hold the concentric rings together are unable to do so, and large portions keep splitting off; but the wood is also often rent the contrary way as well, and splinters like stars radiate from the pith. This great defect in Chestnut timber of large size is much against its general adoption for carpentry work; but where a round piece has to be used, and that composed of the whole or centre part of the tree, this evil is of less consequence. We may, therefore, give the palm of utility in this respect to the Oak.

We now come to the more important feature, that of timber best capable of withstanding the vicissitudes of the season when fully exposed to all weathers, and in this respect our venerable friend the Oak stands first in this list also; although he does not reign here without compeers, for some woods are equally durable, though, in a general way, none are so serviceable.

A gate-post of the Acacia will last as long as one of Oak, and, I believe, Yew will outlive both; but neither of the last-named trees are to be had in such abundance as the Oak; and, consequently, they cannot compete with that universal favourite. But Oaks are longer arriving at an age that fits them for out-door purposes than many trees, as the wood of young Oaks is, perhaps, the quickest of any to fall into a condition of decay. The sap or outer layers of wood being less able to resist decay than even the softest Pine or Poplar.

A Chestnut is much more durable. This is known to all those who have rough timber fences to put up; and still more so by the Hop grower, to whom the durability of his poles is a matter of much consequence; and, strange to say, the most durable pole he has to deal with is the Larch; next to that, the Sweet Chestnut, Ash and Maple succeeding them; while Lime tree, Beech, Birch, and Alder are about the worst. This test is, perhaps, not the best one, but it is worthy of notice. A young Larch of fifteen years' growth, is a more durable tree than a Chestnut of twelve. But to multiply this farther, might, perhaps, alter the result; but Larch Fir, when sound, is a durable timber, and well deserves to be more generally patronised. While on the other hand, perhaps, one of the timbers that run quickest to decay, is the Oriental Plane; and what may seem strange, is yet true—the Turkey Oak is very little better. In speaking, therefore, of the Oak, let it be fully understood, that where not otherwise defined, it is the British Oak we allude to.—An Old Woodman. (*To be continued.*)

CULTURE OF THE ROSE IN POTS.

(*Continued from page* 212.)

Propagation.—*By Cuttings.*—Procure a sufficient number of four or five-inch pots. If new, soak them in water; and if old, let them be well washed, or even scrubbed with a hard brush if very dirty. Provide also a quantity of broken pots for drainage, and the following compost:—Good loam, leaf mould, and silver sand in equal parts; rub them well together, and pass them through a half-inch sieve: this should be done when the compost is in a moderately dry state. Drain the pots well, and then fill a sufficient number to hold the cuttings four or five in a pot. Any time after the Rose trees have made their shoots will answer for this mode of propagation; but if they are put in towards the autumn, they should remain in the cutting-pots through the winter. The pots being all filled ready, then proceed to gather the cuttings. Choose short stubby shoots that are half ripened at the base. With a very sharp knife cut off the bottom of the cutting right across at a joint. Then trim off the lower leaves, and cut off the top three joints. Make a cutting quite long enough. Insert the cuttings in the pot close to the side, leaving a bud or two out of the soil. Press the earth firmly to the bottom of the cutting with the planting-stick. Then give a good watering, and so proceed till all the pots are filled. To succeed perfectly and quickly, the cuttings should be put into a pit or frame set on a gentle hotbed, the surface to be covered with ashes or sand. If that convenience, however, is not to be had, then plunge the pots quite overhead on a bed of coal ashes, and set hand-lights over them, shading from hot sun, keeping them close for a fortnight. Then give a little air daily to prevent damp. They will put forth roots under these glasses, but will be longer in doing so. If any Roses have been forced, the best cuttings can be got from them as soon as the bloom is over. As soon as it is certain that they have made roots, then turn the balls carefully out of the pots, and separate the plants from each other. Pot them immediately in the proper compost, and replace

them under the frame or hand-light till fresh growth is perceived. Afterward give air, and gradually inure them to bear the full light and air. They may then be repotted, and treated the same way as directed for purchased plants. The classes that may be propagated by cuttings to grow in pots on their own roots are all the hybrids, Bourbons, China, and Tea-scented varieties; also, where attempted, climbing Roses. The other classes, such as Moss, Provence, Alba, and Gallica, are best propagated for pots by budding or grafting.

By Grafting.—The best time for grafting is in winter or very early spring. The stocks for grafting upon are either the dog Rose or the Manetti stock. Procure them early in the autumn, and choose such as are clean-stemmed, and with fibrous roots, and about the thickness of an ordinary lead pencil. Cut off the tops to within six inches of the roots, and trim in the latter. Then pot them in five or six-inch-wide pots in the compost described for Roses in pots. Plunge them in an open part of the garden, and towards the end of January look out for scions. Choose such as are well ripened, and cut them into lengths with three buds to each. The lowest bud should be close to the bottom of the scion when grafted. Whip-grafting is the best mode for Roses in pots. I will try to describe it in a few words. Take the scion in hand, and with a very sharp knife cut off a slice at the lower part of the scion opposite the lowest buds. Then cut down the stock as close to the soil as possible, to leave length enough to hold the scion. Cut a corresponding slice of it; and then fit the scion to the stock, fitting the bark of each accurately to each other. Hold them firm together, and then tie them with some cotton or woollen twine so closely that they cannot separate easily. The tie should commence at the bottom of the scion, and be brought round again and again till it reaches the top part of the slice. Then cut off the ends neatly; and cover the twine, either with well-tempered clay and cowdung mixed, or with grafting-wax, composed of five-eighths pitch, one-eighth resin, one-eighth tallow, and one-eighth beeswax. Melt them together over a slow fire in a vessel, and lay on with a small flat stick when warm: this effectually excludes the air and wet. Proceed with the rest in the same way till all are finished. Then place the grafted plants in a gentle heat; keep down all suckers that may spring up, and shade in very sunny weather. When the grafts have grown a few inches give air and less shade; and in a month's time place them in a cold pit, to enable them to grow strong and get firmly established. No flowers should be allowed to bloom the first year. Towards the middle of summer they will be greatly benefited by a shift into larger pots. By grafting a year's growth is gained over the budding mode of propagation.

By Budding.—For stocks procure the same kinds as recommended for grafting, and pot and plunge them in a similar way; only observe not to cut them so short, but leave them to form tiny standards from six inches to fifteen inches high. These small standards form very handsome bushes afterwards. Allow the pots to remain plunged; but examine them as soon as the buds break, and rub off all the lowest, leaving the two highest to grow. In summer, as soon as the shoots are strong enough, shorten them in; and if the sap runs freely, allowing the bark to separate easily from the wood, then proceed to bud them. Procure shoots with matured buds; but do not cut off too many at once, and keep them with their ends put in water and out of the sun. Budding, as the name imports, means inserting a bud of a desired kind in a stock to form a new plant on that stock. It is a beautiful, but rather delicate operation. Choose a part of the stem to receive the bud that is clean and smooth. Make an incision lengthways with the blade of the knife just deep enough to cut through the bark an inch in length. Then cut that incision across at the top, and turn the knife round, and with the ivory end lift up the bark at each side of the long incision. If the sap is in right order, the bark will rise very readily. It is then ready to receive the bud. Cut it off the shoot about half through the stem. Then take out the woody part, leaving the bark entire and the bud full. Insert it in the slit, and cut off the top just at the horizontal cut on the stock. If the two barks just meet there, the chance of success is better. Then tie firmly with soft bast or worsted thread. This is a brief description, but sufficient, I hope, to guide the inexperienced with practice to succeed in this operation. In a month it will be necessary to look over the ties; and if the stem has swollen and the tie is evidently too tight, cut it open carefully, and retie loosely the bud. These budded stocks may remain in the open border till spring; then take the pots up, and place them in a cold pit to shelter the young shoots from the spring winds. All this time look after the stems, and rub off any shoots from them. Also, remove any suckers that may appear. Also nip off the tops of the shoots of the Roses, to cause them to form dense bushes; and afterwards prune, pot, and treat as described above for purchased plants. T. APPLEBY.

(To be continued.)

VARIETIES.

VEGETABLE WAX TREE (*Rhus succedaneum*).—In the New York Agricultural Society's Journal, the Secretary notices the receipt of specimens of the wax and seeds of the tree from which the wax is made, from Hon. P. M. Wentmore, of New York, and says:—"We have placed the seeds in the care of one of our best nurserymen, in hopes they may be made to grow." The importance of this acquisition, as will be seen from the annexed article from the American Consul, London, to the Secretary of State, can scarcely be too highly appreciated:—

"*Consulate of the United States, London, April* 9, 1859.

"Sir,—I am pleased to be able to add another evidence of the forecast, energy, and enterprise of our commercial marine, in the arrival of the ship *Florence*, of Boston, Captain Dumaresq, at this port, from Nagasaki, in Japan, from whence she sailed on the 17th of December last, with a cargo consisting chiefly of vegetable wax. This arrival from Japan is the first that has ever occurred in any English port, and is gratifying to state that there is every probability of Captain Dumaresq realising cent. per cent. upon the whole of his outlay. The wax, and the berry or fruit producing it, being previously unknown in this country, and deeming it probable that it would be an equal novelty at your department, I take the liberty of sending to your address, under separate covers, specimens of the wax and berry; the latter growing in clusters, similar to Grape clusters, on trees varying from fifteen to twenty-five feet in height. The cost of the wax delivered in London is about eight dollars the hundredweight. The experience of Captain Dumaresq proves that the vegetable wax bears without softening a greater degree of atmospheric heat than any other wax he has experience of. The Japanese mode of preparation of the wax is said to be very rude; the berries being first washed by rude appliances, then boiled, when it is formed into cakes of thirty pounds, and subsequently dried in the sun. Should the labour not be too costly, there is every probability that the tree might be successfully raised and the wax manufactured in the Southern States.

"I have the honour to be, sir, very respectfully, your obedient servant, "ROBERT C. CAMPBELL.

"*Hon. Lewis Cass, Secretary of State.*"

—(*American Gardener's Monthly.*)

BOILING-POINT.—When heat is applied to a vessel containing water, the temperature gradually rises, and vapour comes silently off the surface; but at a certain degree of heat, steam begins to be formed in small explosive bursts at the bottom, and rising through the liquid in considerable bubbles, throws it into commotion. If, after this, the steam is allowed freely to escape, the temperature of the water rises no higher, however great the heat of the fire. The water is then said to boil, and the temperature at which it remains permanent is its boiling-point. The boiling-point of water is ordinarily 212°; but every liquid has a point of its own. Thus, sulphuric ether boils at 96°; alcohol, at 176°; oil of turpentine, at 316°; sulphuric acid, at 620°; and mercury, at 662°. The boiling-point of liquids is constant, under the same conditions, but is liable to be altered by various circumstances. Water with common salt in it, *e.g.*, requires greater heat to make it boil than pure water. The nature of the vessel, too, exerts an influence; in a glass vessel, the boiling-point of water is a degree or two higher than in one of metal, owing to the greater attraction that there is between water and glass than between water and a metal. But what most affects the boiling point is variation of pressure. It is only when the barometer stands at thirty inches, showing an atmospheric pressure of 15 lbs. on the square inch, that the boiling-point of water is 212°. When the barometer falls, or when part of the pressure is in any other way removed, it boils before coming to 212°, and when the pressure is increased, the boiling-point rises. Thus, in elevated positions, where there is less air above the liquid to press on its surface, the boiling-point is lower than at the level of the sea. An elevation of 510 feet above the sea-level, makes a diminution of a degree; at higher levels, the difference of elevation corresponding to a degree of temperature in the boiling-point increases; but the

rate of variation once ascertained, a method is thus furnished of measuring the heights of mountains. At the city of Mexico, 7000 feet above the sea, water boils at 200°; at Quito, 9000 feet, at 194°; and on Donkia Mountain, in the Himalaya, at the height of 18,000 feet, Dr. Hooker found it to boil at 180°. Boiling water is thus not always equally hot, and in elevated places, many substances cannot be cooked by boiling. Under the receiver of an air-pump, the same effect is still more strikingly seen; water may be made to boil at the temperature of summer, and ether when colder than ice. In complete vacuo, liquids, in general, boil at a temperature of 140° lower than in the open air. The knowledge of this effect of diminished pressure is now largely turned to account in sugar-boiling, in distilling vegetable essences, and in other processes where the substances are apt to be injured by a high temperature. By increasing the pressure, again, water may be heated to any degree without boiling. Papin's digester is formed on this principle. Under a pressure of two atmospheres, the boiling-point rises to 234°; of four atmospheres, it is 294°; of ten atmospheres, 359°; of fifty atmospheres, 510°. In a deep vessel, the water at the bottom has to sustain the pressure not only of the atmosphere, but also of the water above it. At a depth of thirty-four feet, the pressure of the water above is equal to an atmosphere, or 15 lbs. on the square inch; and thus, at the bottom of a vessel of that depth, the water must be heated to 234° before it is at its boiling-point. This principle has been successfully applied to explain the phenomena of the Geysers. If a small quantity of water be poured into a silver basin, heated above the boiling-point, but below redness, it will begin to boil violently, or, perhaps, burst into steam at once. But if the basin is heated to redness, the water will gather itself into a globule, and roll about on the hot surface, without becoming heated to the boiling-point.—(*Chambers's Encyclopædia.*)

TO CORRESPONDENTS.

Ashes of Rags (*S. B., Birmingham*).—If your orchard soil is clayey, the ashes may be applied to your fruit trees with some benefit, but will not promote their vigour as the rags unburnt would have done. The burning drove away nearly all the carbon and all the nitrogen from the woollen rags. They should be applied fresh and not rotted as you purposed. Rotting would have removed slowly those valuable constituents which the accidental burning removed rapidly.

Heating a Greenhouse (*W. Wright*).—No stove will do unless a tube carries off the smoke and fumes from it, and if you have a tube, then gas may be employed. We have so heated a vinery. It is quite impossible to be more particular without seeing a plan of the greenhouse and the rooms adjoining.

Peaches Mildewing (*Ominous*).—We cannot say positively what is the cause of your Peaches mildewing, unless we knew the treatment to which they have been subjected. In the absence of this information we should be inclined to think that you kept your houses too close, and did not give sufficient air.

Pinus insignis Dying (*Devonian*).—Your *Pinus insignis* has suffered like many others by the severe frost of last autumn. We know of a fine specimen twenty-five feet high which has been destroyed to the same extent as yours; and the small plants in several nurseries have been completely killed.

Spergula pilifera—Planting out Vines in Pots (*Jack-of-all-Trades*).—Neither of your specimens is *Spergula pilifera* as far as can be seen from your specimens. According to the way your greenhouse is worked, the Vine, or Vines, will be much safer by being planted on the outside and the heads taken inside. By the way, lose no time in doing so, if you can manage to get the heads in without hurting the leaves. See also that the ball is laid down perfectly on its side. Being from a No. 4-pot, the roots would get too deep at once if the ball were set upright; and there is not the least occasion to break such a ball in June, July, or August planting. Mulch a yard or more over the ball, which will induce the young roots to run near the surface from the ball, and see that the ball is quite moist when planted.

Culture of the Cactus Tribe (*B. H.*).—In previous volumes we have given much information on this subject; but a series of papers on this branch of floriculture will shortly appear in our columns.

Plants for Exhibition (*Novice*).—The six plants you name first are all Ferns, and, of course, may be exhibited in that class. *Dracæna terminalis* and *Begonia Rex* may be exhibited in a class for stove and greenhouse plants. Variegated-leaved plants are customarily exhibited in collections with flowering plants, if there is no rule directing otherwise.

Bon Chretien Pears Ripening in Succession (*Somerset*).—The way to extend the ripening of *Williams' Bon Chrétien* Pears is, as you suggest, to gather them at different periods. Do not allow them to hang on the tree till they fall or become yellow; but as soon as you see the colour changing, and they part freely from the spurs, let them be gathered and kept in a cool and rather dark place. In this way you will not only have a succession of them, but also prolong their season.

Large Strawberry for Early Forcing (*A Subscriber*).—Notwithstanding your want of success, there is no *large* Strawberry equal to *Keens' Seedling* for early forcing. The *Black Prince* comes rather earlier, but the berries are smaller. The great point in forcing the Strawberry is to have the pots well filled with roots early; and when the forcing is commenced, to have the roots in action before the foliage is much excited. This is secured by bottom heat and keeping the air cool. During growth, a very free admission of air, and keeping the plants close to the glass; taking care that the whole soil in the pot is uniformly moderately moist, and giving a little weak liquid manure occasionally so soon as the berries are formed, will secure fine fruit in abundance. Some notes on this subject will soon appear in our columns.

Culture of Griselinia littoralis (*An Old Subscriber*).—The habit of *Griselinia littoralis* is that of a dense, evergreen, low, hardy shrub, something after the habit of our *Daphne laureola*, or Spurge Laurel, but with more of the looks of a Bridgesia in the leaves. It is an excellent, new, and perfectly hardy low evergreen in the neighbourhood of London, and one of the Messrs. Veitchs' recent introductions. The genus is by Foster, and we believe it is not yet sufficiently determined where to place it in the consecutive arrangements of botanists. The first account of it as having proved hardy near London is in one of Mr. Beaton's reports of the garden at Forest Hill, where the true Spergula was first proved by Mr. Summers, of the Crystal Palace Nursery, at page 75 of our twenty-second volume, where it is spelt *Griolinea*, through an error of the press. Griselinia is the way Foster left it. Mr. Beaton tells us that he has seen that plant again this season, and that the last winter did not brown a leaf of it. Also, that he had seen it out in Sir Joseph Paxton's garden, and that he would highly recommend it. The way a peculiar bed was made for it and others on trial at Forest Hill, will be found in that report, but we believe it will do in any light, sandy soil, such as would suit our hardy and half-hardy Daphnes; and from what we have seen of it, we should take it to be a plant very easy to increase from cuttings or layers in the usual way; also, that it is a likely subject to answer under the shade of trees.

Propagating Cytisus—Grapes Shanking (*W. H.*).—We presume you mean Cytisus for the greenhouse. When your plants are finished flowering clean them from old flowers, and give them a good syringing. Ere long you will perceive many nice little young shoots from one inch and a half to two inches and a half long. Slip these off close to the older shoot with a sharp knife. Dress these clean at bottom by removing two or three leaves. Prepare a pot by filling it two-thirds with drainage. On that place some sandy soil, and cover the top with pure sand, and fit the pot say four or six inches in diameter with a bell-glass. Water, and let the pot stand a day, until the sand is dry on the surface. Then insert the cuttings firmly, and settle with a little water again, and place the glass on again when the cuttings are dry. Place this pot in a rather shady place anywhere under glass. Keep close for a couple of days and nights, and then begin to give a little air at night, and shut close down in the morning. Attend to what water and shade the cuttings require according to the weather; and if you never let them flag for want of water or having too much sun, nor yet get waterlogged, you may expect nice tiny plants in a month or five weeks. Most of them are also easily increased from seeds. Steep the seeds in water at 120° twelve hours before sowing them. The *White Frontignan* is hardly hardy enough for a cool greenhouse. The *Royal Muscadine*, the *Golden Hamburgh*, or, if you prefer a muscat flavour, the *Muscat Hamburgh* would be better. The long cold wet weather most likely is the cause, if the Vine is otherwise in a healthy state. Shanking is generally the result of the roots being unhealthy, or deep, or having too large a crop.

Scaring Birds—Roses for a North-east Wall (*An Amateur*).—There is no way of preventing birds from seeds and fruits but by constant watching and frightening them away, or by shooting them, or else to cover the thing with nets. But you might try an imitation of a volunteer rifleman, for if anything on earth will stop the invasion by your enemies that is the figure. The best covering of Roses for a north-east wall in your locality is a selection of Sempervirens, which you will find in every volume of The Cottage Gardener, and half a dozen of them would soon cover a great length of ordinary walls.

Hardy Ghent Azaleas (*B. Catteune*).—There are not more than one-half so many kinds of Ghent Azaleas as you ask for. But you might plant twenty kinds of them in one bed, and no man or woman between here and Ghent could tell, at twenty yards distance, if the bed were not all of one kind. Seeing, also, men's opinions on distinct colours, all we can venture to risk is to recommend you to ask for two plants of each of the six most distinct kinds of Ghent Azaleas, and any one of the London or country nurserymen whom you see in our advertisements, will send them to you, and you may have them as cheap in Belfast or Glasgow as at London, and quite as good.

Various Queries (*A Lover of the Garden*).—When people send such a number of questions at once, they must be content with short answers. You have commenced with numbering your inquiries, and we would have answered all you require easier if you had continued to do so. We do wish some of our gentlemen correspondents would notice the business-like mode in which many ladies seek for information. The writing as plain as print, and the questions so full and so concise, with not a redundant word, and every word so much to the purpose. Now,

1. We would advise you not to think of a *crop* next season, but to be satisfied with from three to six bunches to a Vine. If your wood is good and well ripened, you may fruit them from top to bottom, but do not complain to us if more than half of the berries shank, or the Vines break so badly in the succeeding year as to do little good for years afterwards. Half a crop at the very most would be enough under your circumstances. The only thing you could do to expedite ripening the wood, is to give no water to the ground after the end of August, to remove all laterals by the first week in September, and give as little air as will just keep the Vines from being scorched. If a few inches are given at the top of the house the first thing in the morning, that, unless in very hot days, will be enough.

2. Your Nectarines, &c., will do so long as they are not overshadowed, and the Fig and Apricot will do until the Vines are fully established. Then the shade will be apt to be too much for thoroughly indurating their wood, unless your rafters for Vines are three feet at least from the ends of the house.

3. The *Muscat Hamburgh* is comparatively a hardy Vine: nevertheless, we would prefer having it in a vinery where a little fire heat could be given—not because we have any doubt as to its growing in your unheated house, but we should doubt its having its peculiarly rich muscat flavour, and more especially if the autumn happened to be dull and cloudy. The form of the bunch is somewhat like that of the *Hamburgh*. The individual berries are rather longer, more oval, but much the same in size. The

colour is more brown than black; and the flavour, instead of resembling the *Black Hamburgh*, has a richness even beyond the other muscats.

4. If your house is so open, you may easily contrive to make it closer, so as to enclose sun heat.

5. Growing fine fruit will not injure the constitution of the Vine; taking extra heavy crops, and especially when Vines are young, will do so.

6. In a late number Mr. Fish described under what circumstances the long rod and spur system may be used, just according to the fancy of the grower, and under what circumstances the one was preferable to the other. The rules hold especially with in-door Vines. In many cases rodding is best for out-door Vines, but any system rightly followed out will do. The thoroughly carrying out of a system is the great thing.

7. We would try the roots of the Vine in the barn. If iron air-bricks were let into the wall no vermin could get in, and heat and air would get to the soil: or fine iron gratings, fifteen inches by nine, might be let in every three feet. Your mode of preparing the ground is all right enough. Under such circumstances you could assist the roots by giving them warm water in spring, and they would not complain of being a little dry in winter.

8. The *Grove End* is a very prolific, rather small Strawberry, esteemed by many for preserving. For earliness and preserving we rather prefer *Cuthill's Black Prince;* but that may be merely our fancy, as some of our friends prefer the *Grove End*, and even the old *Scarlet*—the flavour of which is so exquisite, but the crop is generally thin and scanty. *Admiral Dundas* is a good large Strawberry, and a good bearer in general; but for filling baskets where many are wanted, and for general usefulness, we find nothing better yet than *Keens' Seedling*. *Ingram's Prince of Wales* is also very good and prolific.

Name of Strawberry (*Q. Q.*).—The fruit is very much like *Sir Harry*, but it was so damaged and mouldy we could not form a correct judgment.

Name of Seeds (*A. B.*).—They are those of the common annual Sunflower, *Helianthus annuus*.

Names of Plants (*J. Viner—Oban*).—It is *Spergula saginoides*. The *pilifera* is not a British plant. (*Rose*).—The plant, the seed of which came to you from Melbourne, and is known there as "Stewart's Desert Pea," from being discovered there by a Captain Stewart, is known in botany as *Swainsonia Greyana*. "It was sent to the Horticultural Society by His Excellency Captain Grey, from the banks of the Murray in New Holland, where it had been previously found by Sir Thomas Mitchell." It is figured and described in the "Botanical Register" for 1846.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

July 18th and 19th. Merthyr Tydvil. *Sec.*, Mr. W. H. Harris, 142, High Street, Merthyr.

July 19th. Prescot. *Sec.*, Mr. J. Beesley. Entries close July 7.

July 31st. Newmillerdam.

August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 5th. Keighley Agricultural Show. *Sec.*, R. Fawcett. Entries close August 29th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

THE EGG TRADE.

(*Continued from page* 219.)

Between the flourish of trumpets that speak of this and that show, we will bide our time, and creep in with our unpretending say about eggs. Eggs are not yet sufficiently cultivated as a matter of trade, nor appreciated as an article of food. Now and then one speaks to the other with bated breath, and says, "Do you know, my housemaid who lived with the Scrymgeours says it is not an uncommon thing for them to have no dinner; but to have an early tea, with bread and butter, eggs and fruit." Truly, the egg is a resource. Does a friend drop in, what so nice or so quickly made as the savoury omelet? Does the housewife run short of meat, as she may do in these extravagant times, the eggs again supply the meal. Rather a deep frying-pan is put on filled with small, thin pieces of bacon. While this hisses and sputters, becomes transparent and fills the pan with liquid oil, the requisite number of eggs is broken. They are thrown into the vessel, and then beaten till they are all yoke. "Stand aside," says the good crimson-faced woman to half-a-score of hungry children waiting their meal. "Stand aside," and the golden stream is poured into the pan. Now a skilful shake amalgamates the eggs and bacon. The edges are turned up all round; then the omelet itself is turned; then the dish receives it. Its golden-brown coat is broken here and there, and allows the rich cooked yolk of the egg to be seen. Believe us, such an omelet as this, with some good potatoes, is a capital meal.

We might discourse willingly on the use of an egg or two in thickening and flavouring a good cottager's soup; but, sorry are we to say it, we despair of getting cookery into the cottage. The rectory, the curacy, the surgery, the office, all will gladly adopt it, but not the cottage.

There are, however, families of labouring men where some of the children are naturally delicate: we have seen one of thirteen who seldom saw anything but bread, turn sick at the sight of the fat of a mutton chop. To such an egg is a great boon. We beg all to cultivate egg-producing. We have seen the huge stewpan full of new-laid eggs that have furnished a grand dinner for a large family, and which was the prelude to many more. It was in hot weather, and the joint—

"One solid joint the week-day meal affords"—

soon gave unmistakeable proof it was unfit for food. No butcher at hand to run to. "What is to be done?" says Paterfamilias. "Let us have some eggs." Such a dishful! and piles of bread and butter! and then fruit with it, and all declared they had never made a better dinner. It has sometimes since been asked for as a treat by the younger branches.

We stated at the outset we should creep in between the greater events, and we therefore offer no apology for our cross-breed paper. We can only hope for distinction in the "various class," and are rather confident we shall be thought to be really "a new and distinct variety," partly poultry, partly eggs, and now partly cottage economy. We should not dare to think of cookery in a large house; but there is something approachable in the idea of a cottage, and its inhabitants are often among those who visit the dwellers in others that are cottagers only in name. The idea of our cottage is a rather extensive rambling building, spread over the earth—not thrust into the air. Windows opening to the ground, or rather into a verandah, admitting every odour that is pleasing and fragrant; rooms comfortably furnished; garden tastefully laid out. We confess we like to see the smallest and choicest Sebright Bantams strutting on the lawn; and we have known the worthy gardener, who seriously contemplated leaving when they were put in the garden, express his sorrow when they were claimed afterwards after gaining a first prize.

There is, however, another sort of cottage: it is an unhappy and uncomfortable place. The poor mistress married young; she knew nothing of the duties of a married life, and her time had been spent principally in the fields. She is by no means a vicious person, and while she and her husband constituted the whole of the family, they worked together, and rubbed on comfortably enough. But there were now four children, and they live only a few days in the week. She cannot cook, and the food will not last. True, she gets a little skim-milk, but it don't amount to much. She is not unmindful of what her children undergo, and wishes she could make things last longer; but then in the hot weather, if she had them, things keep so badly; and she don't know how it is, but things seem to go against them.

Teach such a one to save every crumb and scrap of bread. However hard and ugly the crust, however dry the piece of outside, cut it in thin slices and toast it. Take the skim-milk and let it simmer by the fire, break two or three eggs (you must give them to her), and beat them up with some milk, add all together, stirring it well. Then put the pieces of bread in, and failing other food, this poor creature will be able within half an hour to give a nourishing and palateable meal to her family. The eggs give flavour, we had almost said richness, to the soup, and the odd pieces of bread become saturated with the simmering milk, and swell out till their browned sides burst. For the labouring man and the expecting children a meal is required, and that only is one that is put on the table and to which all sit down. A sit-down to potatoes is better than a bread and cheese run-about. The eggs are not only useful as nourishment, but they give an introduction. If you go to teach, it is useless to go empty handed.

DISEASED GAME FOWLS.

I have some Black Red Game fowls, hatched this spring; they are kept in confinement. I feed three times a-day on gurgeons (?), oatmeal, and barley, besides a good supply of lettuce, and they have free access to ashes and water; yet they have a habit of sneezing, gape sometimes, and some have one eye weak; there seems like a skin growing over the eye; their heads

are swollen slightly, and their feathers appear dull and loose.—D. Simpson.

[It is more than likely your fowls are suffering from roup; they sometimes get this disorder when in confinement. There is nothing to cause it in the feeding you mention; but is their roosting-house well ventilated? Have they a grass run? Is the flooring of their house an earthen one? because if board, brick, or stone, they cannot be well; neither can they thrive if they roost in a close place. Give them as much liberty as you can, a run on grass, with plenty of loose dust on the floor of the house and run. Feed them sufficiently on ground oats, but do not overfeed. While sickly give them bread soaked in strong ale, and they will soon get over their ailments.]

SITUATION OF SITTING NESTS.

In answer to T. S. Brooke, I have to observe that very often at this time of the year the hens are sat in a very dry place, of which nothing can be worse, for the want of moisture is sure to spoil the best of eggs. I sent two sittings to a friend in my neighbourhood, and they were non-productive. Two other sittings sent to a next-door neighbour, every egg hatched. On inquiry, I found one sat in a barn on the straw, *being very dry*, and the other in a hedge, bottom sometimes drenched with rain. It is my firm belief that want of moisture in the nest is the cause of many unfertile eggs (so called).—John Hartley, *Great Crosby*.

LOXIA CARDINALIS—ACCLIMATING BIRDS.

Your correspondent, "T. S.," wishes for information as to the address of some of the London dealers in foreign birds, in reference to the subject of the Virginian Nightingales, as recently discussed in your pages. A reference to the "Post-office Directory," under the head, "Birds, dealers in," will give a list; but, I believe, as respects foreign birds, the principal ones are:—Andrews, 17, Old Compton Street, Soho (an exhibitor at the Pantheon, Oxford Street), and Marriott, 54, King William Street, near London Bridge. From the latter I have heard, since my last communication, that the birds in question are at this time extremely scarce, he possessing but one; and, moreover, that of late years the arrivals have much fallen off. They are seldom sent after September or October. From what passed, his opinion appeared to correspond with my own, that these birds are very hardy. I was once informed at the same shop, that many years ago they were engaged to ship to America, by some English purchasers of estates there, a number of English song birds, as Thrushes, Blackbirds, Larks, &c.; with what result I could not learn, all the parties being now dead. At this time, many of the same description of songsters were shipped to Australia with varied success, some of them, however, arrive safe, and it is to be hoped are establishing themselves at the antipodes. With such examples to stimulate us, we ought not to grudge a little expense in pursuing a similar path at home. I may just allude to the fact, as I think it, that since the abolition, some few years ago, of the absurb customs duty on foreign singing-birds, they have become much more scarce and dear. Whether, after the pleasurable stimulus of smuggling had ceased to operate, the inducement amongst sailors to bring them from abroad was lessened, I can only surmise; but I have observed that this case is but one of many others where the abolition of all obstruction to free importation is followed by higher demands in price, and less certainty of supply.—H. T.

AGE OF QUEEN BEES—SWARMS RETURNING TO THE PARENT HIVE.

For certain reasons I am particularly desirous of knowing the age of the queen of a particular swarm which I have had this summer. Perhaps you will kindly assist me in determining it, as I am somewhat at a loss.

About the 17th ult., the swarm in question (a first one) issued from a stock having an old queen, as I suppose, since it was itself a first swarm of 1859, and settled in the usual manner upon a tree, where it remained some little time; but before it could be hived the bees began to return to the parent stock, where they remained for several days. On the 29th, however, the swarm *re-issued*, and *was hived*; but two days afterwards I discovered a queen, apparently a young one, judging from its size and appearance, on the ground in front of the hive, dead. From this circumstance I am induced to believe that upon first issuing the old queen was lost; that upon its second issue *two* young queens accompanied it, as is not uncommon in the case of *second* swarms. But the issue and *return* of first swarms in my neighbourhood have been so common an occurrence this season, that I cannot think the casualty of losing the queen can have been the cause in *all* the instances which have fallen under my notice, and, consequently, I am a little in doubt in my own case.—R.

[The frequent instances of the returning home of prime swarms, and subsequent re-issuing, during the late season, appear only explicable on the score of weather, of course, influencing proceedings in the case of old queens, much more than in later issues, where young ones are concerned. In your own instance we can do no more than offer a surmise. An interval of twelve days elapsed between the first issue and the re-issue, probably most of the intervening weather bad. No proof can be had as to any mishap to the original queen, which you suspect; but in the natural order of events young queens would, in the interim, have come to maturity, in some way to be disposed of. Of these the one you found dead on the ground two days after the second time your swarm took flight, might, without you being aware of it, either have met its fate from the parent queen before her departure, or have resulted from a combat between two or more rival competitors for the throne immediately after it became vacant. You would have done more wisely had you without any delay hived the first issue, instead of allowing the swarm to "remain upon the tree some little time," a practice never advisable, particularly in uncertain weather.]

MIGRATIONS OF A STOCK OF BEES.

The following extract from a letter just received from a Lancashire friend may be deemed interesting:—

"On the 10th of June I examined my hive, when I found it exceedingly light; and the bees, although they were regularly fed, looked miserable. The day being tolerably fine, I fed them outside the hive, and they enjoyed it amazingly. The next evening, on getting home, my wife met me, and in great glee said that the bees had swarmed, and that with the help of a servant and one of my neighbours they were shaken from a tree and safely hived. The thing seemed utterly impossible to me, and I could not believe it. However, I examined the new hive, but found it perfectly empty, and the old hive untenanted; so I came to the conclusion that the queen must have died. Of course I was disgusted with bee-keeping; but I left the old hive on the stand, and troubled myself no more about it. On the 24th June I accidentally observed a few bees near the hive; and on the following evening, to my no small astonishment, the bees were flying in great numbers. No sooner did I perceive this, than, without waiting to put on a bee-dress, I lifted the hive, and found it at least twice as heavy as before the old bees took their departure. On my reversing it, it was full of bees, apparently in a very good condition."—H. M.

A very similar circumstance is related by Dr. Bevan in "The Honey-Bee," p. 171.—A Devonshire Bee-keeper.

OUR LETTER BOX.

Canary Pulling Out its own Feathers (*Brahma*).—I fear your Canary has been fed on too much hemp or rape seed and sugar, and after being fattened too much has now become unhealthy, the skin irritable, and the feathers come out at the slightest pull. If such is the case, you should reduce your bird's condition by low feeding. Avoid hemp or rape seed; indeed, any other oily seed, as well as sugar and sweet cake. Give the bird good, clean canary seed, millet, and shelled oats, and plenty of green meat—as groundsel, chickweed, lettuce, and watercress. Let the bird be kept clean, and have frequent access to the bath. A drop of castor oil will also be beneficial.—B. P. B.

LONDON MARKETS.—July 16.

POULTRY.

As the London season draws to a close the trade decreases; but the continued scarcity of good poultry causes prices to be maintained.

	Each—s.	d.		s.	d.		Each—s.	d.		s.	d.
Large Fowls	6	0	to	6	6	Turkeys	0	0	to	0	0
Smaller Fowls	4	0	,,	4	6	Guinea Fowls	3	0	,,	3	6
Chickens	2	6	,,	3	6	Pigeons	0	9	,,	0	10
Geese	5	6	,,	6	0	Hares	0	0	,,	0	0
Goslings	0	0	,,	0	0	Leverets	3	6	,,	4	6
Ducks	0	0	,,	0	0	Rabbits	1	4	,,	1	5
Ducklings	3	0	,,	3	6	Wild ditto	0	8	,,	0	9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JULY 24—30, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
24	Tu	Illecebrum verticillatum.	30.084—30.052	68—52	N.	—	14 af 3	VII	59 9	6	6 12	206
25	W	St. James. Duch. of Cambridge [born, 1797.	30.126—30.086	80—41	W.	—	16 3	57 7	21 10	☽	6 13	207
26	Th	Herniaria glabra.	30.080—30.009	81—59	S.W.	—	17 3	55 7	52 10	8	6 13	208
27	F	Atriplex portulacoides.	30.059—29.983	82—69	S.W.	—	18 4	54 7	31 11	9	6 13	209
28	S	Beta maritima.	30.073—29.976	82—61	W.	—	20 4	52 7	morn.	10	6 12	210
29	Sun	8 Sunday after Trinity.	29.997—29.960	78—58	N.	.12	21 4	51 7	22 0	11	6 10	211
30	M	Eryngium maritimum.	29.899—29.727	79—61	N.W.	.13	23 4	50 7	25 1	12	6 8	212

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 74.4° and 51.6° respectively. The greatest heat, 92°, occurred on the 25th, in 1844; and the lowest cold, 33°, on the 29th, in 1858. During the period 132 days were fine, and on 99 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Cauliflowers.—The main crop for autumn use to be planted in a rich piece of ground. This vegetable when planted at this season becomes very useful after the Peas are over. *Cabbage*, sow the East Ham, or any other early sort for early spring use. *Celery*, to be kept well watered in all its stages of growth, and continue to get out succession crops as ground becomes vacant. *Coleworts*, make the last sowing. *Herb Beds*, where new ones are required they may be now made. The ground to be previously manured and dug, slips of some sorts and rooted plants of others to be immediately planted. *Lettuce*, thin and transplant a sufficient quantity for use. Keep them watered during the continuance of dry weather. *Parsley* sow, if not done at the beginning of the month. If any has been left for seed let it be gathered as it ripens, or the best of it will be lost. *Peas*, earth up and stick the advancing crops. *Radishes*, sow the Black and White Spanish for winter use. *Spinach*, continue to keep up a succession: a large space of ground may now be devoted to it, as it will not so soon run to seed. Keep down *weeds* amongst growing crops, more especially Asparagus, Potatoes, and other such tall-growing vegetables, where, from the luxuriance that surrounds them, they are apt to elude notice until they have deposited their seeds.

FLOWER GARDEN.

No day should be allowed to pass without paying attention to the various operations of tying, thinning, pegging down, mowing, edging, &c., as may be required. As the seed-pods of Pansies ripen gather and dry them in a shady place. Seed to be saved only from the best. Propagate Antirrhinums, Pentstemons, Phloxes, and other showy herbaceous plants by cuttings; they take root readily under the shade of a north wall covered with hand-glasses. Proceed with the budding of Roses. Evergreens that require pruning to be attended to without further delay. If unfortunately wireworms should make an attack upon the Pinks it will be advisable to place pieces of Potato between the rows just below the surface of the soil, and in the vicinity of those where the last were destroyed. If these are carefully examined every morning, these depredators can soon be caught and destroyed. Thin out the branches of the varieties of Dahlias which usually flower weakly, and remove every malformed bud. Tie the lateral branches to the side-sticks, going over the stock frequently. A small amount of attention now will often save a great amount of damage.

FRUIT GARDEN.

The free-growing shoots of Plums to be regularly tied in, as they are apt to break in training if left too long. Keep the Vines carefully tacked in, and the laterals constantly stopped. The sooner the ground is prepared for Strawberries, as advised last week, the better. Let it be well manured and trenched to the depth of three feet.

STOVE.

If there are sickly or badly-rooted specimens here, they require to be frequently examined for red spider, otherwise they will become a nursery for this pest from which it will soon spread to adjoining plants. Also, guard against mealy bug, and keep thrips and green fly in check by timely applications of Gishurst Compound. See that the young stock is not allowed to suffer for want of pot room, and attend carefully to the watering.

GREENHOUSE AND CONSERVATORY.

Continue to furnish the conservatory with Japan Lilies, Fuchsias, Heliotropes, Globe Aramanths, Balsams, and Cockscombs. Shift on late Fuchsias, Scarlet and other Geraniums, and cut back the principal stock, allowing the wood to get firm and the soil to be dry before the operation is performed; putting in the required quantity of cuttings either in a warm border freely exposed to the sun, or in a frame. See that the Heaths are not suffering for want of pot room. *Pimelea spectabilis*, the different varieties of Polygalas, and other such kinds which have done blooming to have their branches shortened, and to be set in a cool, shady place to break. *Aolus gracilis* to be cut down close to the pot; and Leschenaultias that are getting shabby to have all their flower and flower-buds removed, and to be transferred to a cool place to start again. On the evenings of hot, dry days give the greenhouse plants that are set out of doors a good sprinkling, and also the ground upon which they are standing.

PITS AND FRAMES.

Attend to the linings of Cucumbers and Melons; stir them over, add fresh material, and keep them well topped up, as a deficiency of bottom heat is generally the cause of canker and other diseases. If Cucumbers are required through the winter, seed to be sown now, so as to have strong plants by the beginning of September.

W. Keane.

CROSSING FLOWERS.

"Where there is a will there is a way," as the old saying goes; but a way without a willingness, on my own part to tread it, has opened up the distance at which speculation and practice work from each other in the crossing of flowers in the last number of The Cottage Gardener. And after the earnest request from the owner of the Yellow Polyanthus which comes true from seeds, I can hardly refuse some thoughts and some corrections on the common errors about crossing which obtain ground in the writings on the science of gardening through all our books. Like every other labourer, the labourers in this science have adopted wrong notions on the working of it, by jumping at conclusions from stray glimpses of the facts which were recorded upon incomplete evidence and upon certain trials which have not been proved. And science, or the labourers in this branch of it, are now on strike as surely as ever the workers in the building trade have been; and it is not in the nature of things

that they should sign the "document" of their masters, the cross-breeders, until they can perceive the relation between facts on the one hand and fables on the other. No need to tell of masons, and plasterers, and "them" sort of people, till we ourselves can appreciate and show the value of practice and manipulation in conjunction with the branch of science which places the results on a natural basis.

The Prince Consort, in his presidential charge to the Statistical Congress the other day, said that the first and fundamental effort of every branch of science should be to adopt a uniform explanation of the terms it made use of: therefore, on that assumption, our branch is still on strike about the "document,"—about the definitions which the cross-breeders draw from the bosom of Nature, as it were. The labours of the cross-breeder compel the botanist to reconsider his arrangements, and to build them on a natural basis, like his own experiments. It was feared at first that the labours of the former would rather confound than assist the efforts of science; but experience did not affirm the point. The whole weight of science goes to prove the first and firmest rule of the cross-breeder—that plants from two natural genera cannot be crossed. In all other points science and practice are at variance as to the ways and means for crossing, and to the definition of many of the terms which are necessarily employed to convey the meaning of our dealings of crossed and crossing flowers.

"The pollen is never shed from the anther of the stamen until the stigma of the pistil is fully developed to receive it," is the first rule given by science to the student in cross-breeding. Nature tells him a very different tale, as much as to say, "In order to keep down mental pride, I have so arranged that the presence or absence of stamens and pollen, and the progress of the growth and ripening of pollen have no effects whatever on the development of the pistils and stigma. I produce and ripen the pollen, and effect my process of fertilisation while the flower is yet in the first stages of a flower-bud;* and I work on gradually from that point, keeping the relative development of anthers and stigmas as much apart as if each of them were a member of a different plant, and as if my intention were never to allow a stigma to be fertilised by the pollen of the same flower. It is by ripening and dispersing the pollen of some particular plants before the stigma of any particular flower of them is ripe enough for effecting self-fecundation, that I am enabled to keep them from degenerating; and not only so, but that is my mode of improving races as much as of keeping them in their generations free from that degree of debility which would render them an easy prey to more powerful and competitive neighbours. In your kingdom among animated nature, I have given sight and smell as means to the same end."

That is how Nature speaks to Science on the very first lesson on cross-breeding. Therefore, he who goes to cross on scientific data, will soon find he is at cross purposes with Nature.

The gaping of the stigma when the pollen is about to fall, and at that time only, may be observed in the Heartsease. This view of crossing is taking it in the easy mood, but in the wrong tense. Stigmas which are so formed as to resemble gaping in any stage gape at all stages, from the nascent flower-bud to the time of natural maturity for the reception of pollen; and some gape on from the nascent to the point of puberty. Split flower-buds of the Leschenaultias and you will find the stigma with a gaping mouth wide as that of a young cuckoo, and open day and night till the anthers discharge their dust in it in secret. When that is effected the mouth closes; and by the time the flower opens all traces of stamens, anthers, and pollen are gone. Thousands this week or month can prove what I say.

In the great majority of such instances as are likely to come before the amateur, the age of puberty in the stigma is a mystery and a guess, there being no sign to indicate it perceivable by any ordinary lens. In the Rhododendron and Lily, and kinds with kindred styles and stigmas, the auspicious moment is known by a viscid fluid on the surface, and that fluid remains as long as the member is capable of fertilisation and no longer. The instance of the fluid drying up at noon, and reappearing each morning on the stigma of *Amaryllis formosissima*, or on any other stigma, is contrary to Nature also. No flower has more baffled practitioners than that of this Jacobean Lily. I have had a thousand of them under ten or a dozen kinds of trials, and in a space running off twenty-eight years; and the recurrence of the genital, as Gilbert would say, after it once dried off, never recurred in any one flower, nor in any other flower that I ever handled.

Mr. Knight's theory that the seed-vessel is not altered in appearance by impregnation from another plant, I thought and accepted as decided by experience; but I recorded this spring an instance to the contrary, which is capable of proof at any time. The pods of *Imatophyllum miniatum* stand erect as the umbels of flowers, and the pods of *I. cyrtanthiflorum* hang down as the flowers do. By crossing the two, the pods of the former become as pendent as those of the latter—the most curious thing I know of among plants.

When you depart considerably from the wild types of our cultivated kinds or species, the influence of crossing is not so easily predicted; and when you reach the stage at which either of the parents lose their specific influence—lose their power of reproducing themselves by seeds, you can never predict the appearance, or the beauty, or markings of any of the seedlings.

In Geraniums and Calceolarias the leaf and the colour of the flower go more after the pollen parent than not; but the rule is not absolute in any genus that has yet been proved. The seedlings take the habit of the mother if the father and mother are of the same constitutional strength; not otherwise in any instance within my knowledge. I am at this moment making practical use of this very point.

Science puts it down as a rule, that if you cross two plants the seedlings must of necessity be intermediate in all their ways and looks; but Nature is very different indeed. First of all they would need to be near the original types; and, secondly, both must be of equal strength under equal circumstances, else it is ten to one if their offspring are intermediate. In all our common flowers the strength and the colour of the father, and the habit of the mother, are seen ten times to every instance of a perfectly intermediate degree, and both will get less and less to be relied on as the crossing of kinds is multiplied.

The doctrine of superfœtation has been pushed to its limits by Dr. Herbert and myself from 1836 to 1846, and neither of us believed one word of it. We could not produce the faintest trace of it. Hundreds of self-seedlings, without crossing, come as if they were of several parentages on the pollen side; and I am satisfied that scores of reputed crosses and crossings are of such origin, and merely an account of the trials that were made instead of the result obtained. No flower on earth is more easy to prove by if more than one pollen can influence a cross than any of the common Geraniums. Their stigma is parted into five parts, and each part rolls back from the rest, or from the centre; and there are five seeds for every flower, corresponding to the five divisions of the stigma, or mother, as we say. Now, by applying five kinds of pollen, one kind to each division of the stigma, it is easy to conceive the possibility of each seed being influenced by that pollen only which dusted its corresponding division; and if the scientific explanation of the process by which the pollen reaches the ovum, or skeleton seed, were correct, superfœtation would be inevitable,

* Leschenaultias and Wheat are so fertilised.

and five kinds of progeny must be obtained from that flower so operated upon. The Hibiscus is the next easiest flower to prove that superfœtation and the explained progress of the pollen to the ovary are both on a baseless foundation. I believe, from my own experience, superfœtation among vegetables is simply impossible; and that implies, also the impossibility of the pollen passing in grains in tubes of extreme tenuity to the embryo seed, which is the way it is explained by scientific men.

The way I conceive the pollen must act in order to give the results with which many are quite familiar is this—for there is no other way of accounting for such results as we obtain. The pollen dust is in grains, like gunpowder; but the grains are inconceivably small. These grains swell on the application of moisture, and burst at a certain stage of swelling, and the substance melts and is absorbed in the moisture as sugar is in tea or coffee. In every part of a plant, tree, or flower, from the tips of the extreme roots to the farthest-off leaf and petal, there is a constant moving of fluid, and the fluid is constantly changed in its nature; and there is a natural turn, or condition of the fluid, for every natural requirement of the system of which the plant is composed; and one condition is the fulfilment of the original mandate to increase and multiply by seeds. The viscid fluid on the stigma is the last condition required, and in that condition it is incapable of evaporation by the ordinary heat of the sun. Like other fluids, it cannot come there by chance, only by the usual process of circulation. The pollen sticks in that viscid fluid as flies stick in treacle; it cannot pass through it, or part from it; but it swells and bursts, and its contents are absorbed on the summit of the stigma. The passages in the style, from the stigma to the ovary, allow of the circulation and the return of this viscid fluid, now mixed with the contents of the pollen grains. Were the process different, superfœtation might be possible. But now see the barrier which hindered the influence of the five kinds of pollen on the five divisions of the stigma of a Geranium. The five kinds gave their contents equally to the fluid, but the fluid is not visible in this kind, and the one of the five which had the nearest affinity, as a chemist would say, to the mother, took the lead, and neutralised the effects of the other four.

In Nature and in the wilderness it was a wise provision for covering the face of the earth, that the anthers of flowers should ripen and discharge their contents before the stigma was sufficiently ripe to absorb it; thus compelling every flower to be impregnated by another flower on the same plant, or from another plant within the degrees of consanguinity. The earth was thus very early clothed after the dispersions by the flood. The origin of species was then specially founded, and their subsistence to the after ages of the world has been partly owing to their power of selection, as Mr. Darwin says, but in a much greater degree by the capacity of the viscid fluid to retain the influences of the stronger member of the same kindred; because, as we have seen, and as I have proved in scores of instances, and as any of us can now prove in one month, that out of five kinds only one kind will ever take the lead: so in the preservation of kinds, which is a better word than species, its own pollen does not fertilise one flower out of one thousand. Another flower from the same branch, or truss, which is later in ripening its pollen does the business; and if the stigma is within the influence of five plants, or five hundred plants of the same kind, not one of them is capable of taking the lead but the one which is the most perfectly developed and the strongest; and I have made use of that very circumstance since 1838; and I am perfectly well satisfied that the contrary cannot be proved by direct experiments. The origin and the power of sustaining species to the end of time is just as familiar to me as my own origin, which my dear grandmother never ceased to dun into my ears while she applied the sustaining power up to the cramming point. D. Beaton.

BEDDING OUT BEGONIAS—WEATHER IN NORTHUMBERLAND.

I have had the following out about a month—*Begonia amabilis, argentea, grandis, Griffithii, Prince Troubelzkii, Rex*, and *Queen Victoria*. All are growing and doing well except *amabilis*.

Caladium argyrites, marmoratum, and *hæmatastigma* were planted at the same time. They look rather sulky, having lost most of their leaves; but the last few days have done wonders, and they are coming away well.

It has been a trying spring—such a one as I never before experienced. On the 18th of June we had hail lying on the ground four inches deep. Such a smash it made among bedding plants as has cost me £17 to make up the beds again, for my reserves were exhausted.

Fruit has suffered seriously, particularly Apples. All other fruits will be abundant, but very late; and, unless the autumn is very fine, cannot ripen with us.

I never had such trouble with Kidney Beans. They will not grow, do what I will.

We have just had twenty-two weeks this winter and spring, during which the ground was never free from snow.—Thomas Shortt, *Raby Castle*.

RAISING GERMAN AND SIBERIAN IRIS, AND CANNA COCCINEA FROM ENGLISH SEED.

In your answer "To Correspondents," Vol. XVIII., page 207, signed "G. R.," you were kind enough to answer an inquiry as to the best mode of growing German Iris from seed, adding a request that I would let you know the result; and as you are always so ready to receive information in so courteous a manner, it is with much pleasure I comply with your request. The seeds were sown as soon as ripe, in 1857. Several of them came up in the autumn, and more in the spring. They were in a shady situation, and kept constantly moist. They were left to grow all the summer of 1858, and planted out in the spring of 1859, but only one flowered that year. I put a good top dressing of manure on in the autumn, and this year *all the German* Iris have flowered, but at present none of the *Sibirica* tribe have done so. I am happy to say I had not one bad flower amongst the lot, and have marked about eight as being new and distinct, at any rate they are different to any I have seen.

I may mention the flowers were, perhaps, rather smaller than usual, which I attribute to their being grown in a town, and being the first year of flowering, as I have always found the flowers of Gladiolus grown from seed increase in size each year.

If not taking up too much of your time, I will just mention I grew the *Canna coccinea vera* last year from seed. I succeeded in flowering it in the open ground, and seeded it; and as a proof the seeds were well matured, I have raised plants this year from the seed so saved.

As there have been some articles and inquiries in your journal respecting Cannas, I have written my experience (if it is of any use), as I am afraid those who are trying it this year will be disappointed, in consequence of the cold, wet season, as mine at present show no sign of flower.

In sowing Canna seeds, or German Iris, steep them in *hot* water (110°), and keep that heat for ten or twelve hours. It is the grand secret for *all hard-coated seeds*. I may add I put my Canna seeds in the hottest bed I can make, no matter how much steam.—G. R.

CULTURE OF THE ROSE IN POTS.

(*Continued from page* 249.)

Forcing.—By forcing is meant the production of blooms under glass in winter and spring. As I intend my readers to succeed well, I shall describe the best method, drawn from experience, of complete success. The market-gardeners, who grow forced flowers for sale, crowd all sorts of plants in one house set apart for this purpose; and, as it is well known some require more heat than others, such as only need a moderate heat, just above temperate, suffer greatly by having too much heat given to them. The Rose is one that so suffers. Grown in too high temperature, they become what is technically called drawn, and their blooms are pale in colour and few in number. These are facts patent to every cultivator. The most effectual plan to avoid this evil is to devote a house, however small, to the Rose

alone. A span-roofed house is the best form—the doors at each end, a pit in the centre, and platforms next the front lights, with the walk or paths between the pit and the platform. The air-giving means should consist of sliding-doors under the platforms, and ventilators on the highest part of the roof. The means of giving air should be so arranged that plenty can be admitted when the weather will permit.

The pit should be filled either with leaves or spent tanners' bark. By plunging the pots in a moderately warm bottom heat root action will commence at once, and the Rose trees will shoot forth more strongly in consequence. The bushes on the platforms will be slowly advancing, and will take the place of those plunged in the pit when they are in flower. The best mode of heating this forcing Rose-house is with hot-water pipes under the platform. They should commence at one end, and return back to the boiler. If the upper pipes have troughs fixed on them they can be filled with water, which will give out a gentle moisture to the air, and this will greatly assist the Roses to grow strong, as well as keeping down the red spider. Such a house so built and so heated will be found to be excellent for forcing Roses, or indeed any other hardy shrub.

Preparing the Rose Trees in Pots for Forcing.—To make more sure of success the plants should be so prepared as to be, as I may say, ready and eager to grow. The wood should be well matured, and in order to render it so the plants should be strong and well established in their pots twelve months previous to being set to work to bloom early. Toward the end of the summer the pots should be lifted out of the ground, and placed in a warm situation on ashes, and no more water given than will just keep them from flagging. This will ripen the wood, and fill the buds with the right sap to produce flowers. At this time the superfluous shoots may be thinned out, but leave the rest till further on in the season; then, before the heavy rains of autumn set in, place the plants in a cold pit, or under any kind of shelter that will throw off the rains. In this situation keep them rather dry, and about a fortnight before they are to be taken into the forcing-house, prune the number required; and when the time arrives take them from under the shelter. Wash the pots clean; see that the drainage is perfect, and then top dress them by taking off the old soil on the surface, and laying on a coating of very well decomposed dung and loam in equal parts; then give a gentle watering with lukewarm water, and take them into the forcing-house.

The management there will consist of giving a gentle heat at first—say, 50° by day, and 45° by night. This heat may be increased in three weeks ten degrees, and then a gentle syringing over the swelling buds will be of great service. But little water at the root will be necessary at first; but as the leaves begin to expand more will be required. It should always at this inclement season of the year be used in a tepid state, rather warmer than the heat of the house. When the flower-buds begin to show, an occasional watering of liquid manure will be of service. It may be made either with guano or fowls' dung mixed with soot.

Air, I need scarcely mention, should be given daily if the weather is mild. Change of air is absolutely necessary; therefore, pay great attention to this point. The air given at the sides of the house will pass over the pipes and thus become aërated and mild when it reaches the leaves of the plants. The best time to commence forcing is about Christmas—that is, for the general early crop of flowers; but for blooms, during December and January. Hybrid Perpetual Roses should have all the buds nipped off and be pruned in September, and then buds will be formed and blooms produced in winter. This I name retarding rather than forcing; for this bloom belongs, in fact, to the latter end of the previous year. These plants should be placed in a cold pit well aired, to keep them back till they are required to be put into the forcing-house in October, November, and December, according to the forwardness of their blooms.

Insects.—These prevail in a forcing-house as well as out of doors, and are equally mischievous to plants, especially to Roses. First in mischief is the *green fly*. It generally makes its appearance on the stems of the young Rose-buds. Good tobacco paper, burnt cautiously in the house, is a most effectual remedy. The operator, however, should never leave it till it is completely consumed; for if left, and it should break forth into a flame, he may bid good-bye to his hoped-for crop of Rose-blooms. Common tobacco, if neglected in using, is equally dangerous; yet if properly and carefully used both are safe. For my own use I prefer good tobacco paper. I use a strong garden-pot with a hole in the side towards the bottom. Up to the hole I fill with red hot cinders, and upon them I lay the tobacco. If it is very dry I just damp it; then I blow in at the hole with a pair of bellows, and immediately a thick cloud of smoke arises, which spreads out and quickly fills the house. No sooner is this effected than the pot is removed out, and the house left closed for the night. In the morning I generally find all the green flies dead, and even thrips, if any are in the house, also. With this method and care, I never had any scorched leaves. The eggs of this insect no smoke will destroy, but as soon as they come to life a second smoking destroys them.

Grubs and *caterpillars* very frequently make their appearance on Roses in pots when growing in the Rose-house or greenhouse. If not destroyed they will eat out the very end of the shoots, thus destroying the bloom as well as disfiguring the form of the plants. They will appear on the Roses plunged in the bed in the open air. The most certain way of destroying them is that of crushing them with the finger and thumb, and this should be done before the mischief is perpetrated. Tobacco smoke will search out the most secret haunts of these pests and destroy them. A temporary awning impervious to the smoke should be placed over the plants in the bed, and the space so enclosed filled densely with tobacco smoke. This will destroy all living at the time, and should be repeated as the eggs are hatched.

Red Spider.—If the air in the house has been kept dry this tiny enemy will appear. Syringe with sulphur water, and keep up a moisture in the air for a time, and it may be destroyed also.

Mildew.—This is a formidable enemy, but even it may be kept under by dusting the leaves affected with flowers of sulphur. Mildew is caused, or at any rate greatly encouraged, by a *cold, damp* atmosphere. The remedy for this is to warm the air, and keep the floors and walls dry. Light a fire early in the morning; and as soon as the internal air is warmed open the top light or ventilators, and thus drive out the cold and damp together. This generous treatment, together with an application or two of sulphur, will clear your plants of mildew. T. Appleby.

(*To be continued.*)

NEW LYCOPODS.

Salaginella atro-viridis. *Lycopodiaceæ.*—This is a distinct-looking species, green, with flabellately-arranged branches, which are ramified in a dichotomous manner, and recurved at the tips. It appears to be a dwarf kind, and to have most resemblance in habit to the kind known as *S. Pœppigiana* in gardens, but is quite distinct from that and every other kind. Introduced from Borneo by *Messrs. Veitch & Son.*

Salaginella Lobbii. *Lycopodiaceæ.*—A new and extremely ornamental Lycopod of tall-growing habit, the main stems producing alternate branches, which, from being quite flat and pinnately branched, and having the branchlets close-placed, have much resemblance to Fern fronds; these branches are of a fine blue metallic tint, similar to that which occurs in some other species of this family. Introduced from Borneo by *Messrs. Veitch & Son.*—T. M.

EPACRIS.

MINUTIÆ OF CULTURE.

These will be confined chiefly to meet the inquiries of "Salterton," to which already some attention has been given, and with the hope that they may be found suitable to a large class of amateurs with limited means and accommodation, and who might wish to have their little greenhouses gay in early spring, and the first days of summer. These Epacrises, which may be considered as the Heaths of Australia, are much more accommodating than Ericas, the true Heaths of South Africa, as they will pass uninjured in an atmosphere that would not disagree with a general collection, when the Heath proper would be ruined for want of a current of fresh air, and, in consequence, become a prey to mildew with all its attendant evils. Both in their native countries are found to thrive best in open, exposed situations. Both are exposed to heavy rains at times; but also to long periods of bright sunshine and very warm weather. The one excites rapidity of growth, the other ripens and consolidates the wood. Such modes may be followed in this country by the experienced, in the case of both families; but the inexperienced would be apt to find, that in a close, warm atmosphere, the Heath would become lanky and encrusted with mildew, whilst the Epacris would maintain its health and vigour. In other

words, this tribe will stand uninjured more extremes of heat and cold, of dry and moist air, and dryness and moisture at the roots, than the Erica will do.

One advantage of the whole Epacris group is, that whether what is called species, or beautiful garden florist-raised varieties, the most of them bloom in the spring, and if treated for the purpose might just as easily be made to bloom in winter. Many of them without anything like extra attention will begin to open their blooms after Christmas, if the average night temperature is seldom below 45°.

As *pruning* is the first point mentioned by our correspondent, we will first direct our attention to that, and describe two different modes of treatment according to the circumstances and tastes of two different classes of amateurs. The first having reference to those who have a forcing-bed, or pit, or plant-stove, or a forcing-house—say a vinery or a Peach-house at work, or can make one end of their greenhouse closer and warmer for a time than the rest of it; and the second, applying more to those who have merely a miniature greenhouse, the temperature and atmospheric condition of which can hardly be otherwise than uniform all over, and perhaps a small turf pit to assist in keeping that greenhouse gay and in good order. Taste may also somewhat determine the matter; as, in the first case, it will be possible to have long shoots from twelve inches to thirty inches in length covered with bloom from end to end, and in the others, to have dense bushes covered with bloom, but chiefly from shoots a few inches long. Our mode of pruning them will constitute the basis for our general management.

Now, as to the first supposed conditions. We will conclude that the plants have finished blooming, and are in four or six-inch pots, as they were obtained in autumn or spring from the nursery. Each plant, therefore, would have, most likely, a number of shoots; and the quickest and best way to get rid of all the decayed blossoms and incipent seed-vessels, is to prune back all these shoots within two or three inches of their base. To make something of a symmetrical plant on this system, the centre shoot or shoots might be left nine inches long or more, another ring half as long, and the next, cut in to an inch or so. This plan will give the plant something of a pyramidal appearance afterwards; and when once thus established, each set of shoots may be cut back every year when done blooming, much as you would cut a Willow stool, leaving only a bud or two to each shoot. When plants are very young, and in small pots, it is as well not to cut back too close; and when the plants get old, it is also injudicious to cut back into older wood than that made the previous summer. On this plan, therefore, either a Willow stool, or a Vine on the spur-pruning system, will furnish examples as to pruning the Epacris; only keeping in mind, that it is on the wood springing from such spurs, longer or shorter, and well ripened before winter, that the bloom-buds are to appear and open the following spring.

When the plants are thus pruned, the plants like a little rest. Allow them, therefore, to remain in an airy, shady part of the greenhouse for a week or so, and give but little water, as the evaporating surface will be mostly removed. A slight dewing from a syringe frequently over the top of the plant will be more serviceable than deluging at the roots. Hardy as the plants are, I have known them depart in dudgeon when under such circumstances the soil was waterlogged from too heavy and often repeated applications from the water-can.

The next thing, if possible, is to remove the plants to a forcing-pit or house—say to a temperature of 60° to 65° in May and June, or earlier if wanted early, and to give them a rather close, moist atmosphere. After this the roots must not get dry, but neither must they be saturated. The gentle sprinklings of the top frequently from the syringe will cause the young shoots to push vigorously from what was left of last season's growth; and if these are more numerous than can find room for growing, it is advisable to thin them a little when from one to two inches in length. When a little more than the last length is the best time for

Potting, if the plants require it. At any rate the drainage should be examined and fresh surfacings be given to the pot. At first we would recommend rather small shiftings—that is to say, after the fibres on the outside of the ball have been gently disentangled, and a little of the lower drainage removed, from half an inch to an inch space all round will be quite sufficient. We are now saying nothing about the large-shift system, as, on the whole, that requires extra attention, especially in watering.

The *soil* required should be mostly good heath soil, rather rough for the size of the shift, with a portion of silver sand, and some little bits of charcoal, and broken pots, to keep the soil a little open and allow the water free access to the drainage, which must be extra well attended to. I have supposed that no plant is repotted in which care has not been taken previously to see that the ball was moist to the very centre; as, otherwise, in repeated waterings the moisture would be apt to escape by the sides of the pot, and leave the mass of roots in the centre as dry as a well-burnt brick—one fruitful cause of consigning many a plant to the rubbish-heap that otherwise might have flourished for years. When the plants are large and old, a little fibry loam added helps to keep them strong and robust.

When this repotting is done, the plants should be replaced in the same genial growing atmosphere, waterings given whenever the plants require it, and frequent dewings overhead administered from the syringe, and a powerful sun deadened until the shoots are progressing freely in length. Then the plants should still have the stimulants to growth referred to; but, at the same time, be placed in more open spaces, so as to enjoy the beams of the sun unshaded. According to the time when the plants received this treatment, by July or August, the plants may be removed to a cold pit, on which the glass may be kept at first for a week or ten days, just giving the plants enough air to prevent them getting overheated and drawn; and then just take off the lights for some hours in the morning and evening; and then take them off altogether in a week or so, except when there is a likelihood of heavy rains. At this stage the plants will stand and delight in the brightest sun; but the roots will be apt to be injured if the pots were fully exposed. But for this, the plants in August and September would be as well in an open place out of doors as a cold pit. The latter helps to shelter the pots.

It will be seen that by the above method, the object is to obtain long shoots, stimulated at first into growth, and then exposed to the sun to consolidate and ripen the growth, in order that the long shoots may be clustered from end to end with flower-buds. The plants should be housed by the middle of October. When growing freely, a little weak, cool manure water will be of advantage; at other times I prefer it to be clear, pure, and soft. After housing, the plants may range in temperature, and with plenty of fresh air, from 35° to 45°. When kept a little higher the flower-buds will swell quickly. Some ladies are very fond of such long shoots, all bloom, for making bows and wreaths. Where the conveniences exist, this is, on the whole, the easiest plan for growing these plants well, and the method is so simple as not to confuse by intricacy. Its success depends greatly on being able to assist growth after pruning with something like a tropical climate. I have managed that in hot summers, with a common glass frame, by giving little air, shade when necessary, and a moist atmosphere until we considered it was time to harden the shoots. In such cases the sun acts as the heating medium in a hothouse.

The main features in the second mode are similar, but attended with less trouble as to giving the plants suitable positions during the season. In this case it is best to give the plants a bush form. Instead, therefore, of cutting back the young shoots that you received on the plant you had from the nursery, when done flowering it is best merely to nip off part of their points, and then tie out these shoots—some merely on a level with the rim of the pot, and others in intermediate positions between that and the central perpendicular one. After resting a few days, and syringing the stem and head, keep the plant in as close a place, and a little shady, as you can manage in your little house without interfering with the necessary management to other inmates in a flowering condition. When the fresh shoots start, the general management will be similar to the first case; only, if you are not able, by shutting in the sun's heat, to make a cold frame or pit into a hothouse, with few exceptions the growth of your young shoots will be short, though there will be plenty of them. These, though short, will require ripening, as well as their more lengthy rivals: and therefore, by the end of July, or the beginning of August at farthest, the plants must either stand in an open sunny place in the greenhouse, or be placed out of doors in a turf-pit, or where the pots may be sheltered from the blaze of an autumn sun. If the plants are kept in the greenhouse, to prevent the pot getting too hot for the fine hairlike fibre roots close to its sides, it is a good plan to put the pot inside a larger one, and stuff a little moss in the opening between them at the top. By this mode, when the plants are fully established, very little pruning will be required every year, farther than just nipping back the shoots a little, and getting rid of the old decayed flower-buds. Thus treated, and weak cow-manure water given when the plants were growing, and a few similar doses when they were blooming, we have seen nice stubby specimens kept in six and eight-inch pots

for a number of years; care having been taken to drain well at first, to prevent the entrance of worms, and to top-surface with fresh compost every year.

For such window-greenhouses as "Salterton" proposes, I would prefer this last plan. In a common sitting-room, the temperature at the window averaging 50°, with a fair amount of fresh air, the plants will keep nicely in the spring months for a month or six weeks, or more. If the temperature is higher, it will be difficult to keep the atmosphere pure and moist enough in proportion, and the blossom will be apt to fall prematurely, and the plant to get unsightly. Under such circumstances the plants will be kept over the winter better near the window of an unoccupied room, where little or no fire heat is used, and where a little fresh air can be given when the outside temperature is not under 35°. In such a place the plants should rarely be lower than from 35° to 40°. By shutting such a room at night, it would be rare, even in winter, that fire in the grate would be needed to keep out frost. When there is no convenience out of doors, and it is desirable that the windows of the sitting-room should be as gay as possible, a sort of plant-room of this kind is necessary as a nursery-reserve for supplying the others. An Epacris plant so kept in winter will have a very different appearance in March and April, when compared with one that was kept all the winter in the sitting-room, and exposed to the alternating heats and colds, and dried atmosphere, which are imagined necessary for the comfort of the family.

The Epacris has rarely succeeded as a window plant, because some of these little matters have been forgotten. If "Salterton" and lady rivals wish to have this pretty acquisition with the help of their windows alone, the following is something like the system they must follow:—Prune and grow as in the second mode, and the window of the living-room will then be none too hot. Place the plant outside the window by July and August, if possible, and place the pot inside a larger one, or place the plant in similar conditions out of doors. House the plant in October. Place it in the window of a room where little or no fire is used in winter; keeping the plant from frost by moving it to the centre of the room, and covering it if necessary, or lighting a small fire if absolutely essential. By March bring the plant to the window of the sitting-room, and the extra heat and a little sponging, or rather brush-daubing with water, will soon swell and open the buds. When the flowering is over repeat the process. In winter, whilst kept cool and airy, the plants will want a little water, and that should be a few degrees warmer than the average heat of the room. With such care the same plants may ornament a sitting-room for years; without it they will rarely last above a season. Judge such care a bore, and there is no alternative but to apply to our friends the nurserymen, who consider no trifles below their attention. R. Fish.

HOW TO PRESERVE FLOWERS IN THEIR NATURAL FORMS AND COLOURS.

Of late an entirely new article of trade has arisen in Germany in the shape of dried flowers. Erfurt, the city of nurserymen and florists, excels in manufacturing bouquets, wreaths, floral decorations for rooms, dinner-tables, &c., made of such flowers. We are glad that we are enabled to lay before our readers the *modus operandi*, by translating for them the following article from "Deutsches Magazin fur Garten und Blumenkunde." In return, we should like to hear of any professional or amateur gardeners who try their hand at it, how they have succeeded.

First condition: get a lot of fine sand, wash it till all the soluble particles are gone—you can test it by pouring the water off till it looks quite clear; when you are quite sure of the fact, pour the sand on stones or boards placed aslant, so that the water can run off, and let it get dry either by sun or fire—dry, perfectly dry. Then pass the sand through a sieve, so that all dusty particles disappear from it, as there will be such which washing and drying will not have removed. Then pass through a coarse sieve so as to get rid of too large grains. When that is done your sand should be a mass of fine particles of nearly equal size, as is, for instance, the so-called silver sand, used for writing. Keep the sand in a very dry, if possible also in a warm place, that no vitalizing quality may remain in it.

Now for the flowers—cut them in a fully developed state, taking care that they are neither wet nor moist by dew, rain, &c. If you cannot obtain them in any other condition, which is to be regretted, then the following troublesome proceeding will render them dry. Take one or two flowers at a time and put them into a glass, into which pour just enough water that the ends can stand in it; the flower will then dry and still suck up water enough not to fade.

Next, get a box or a pot, or anything large enough to receive your flower or flowers; pour sand enough into it that they will stand by themselves, their stems embedded in the sand. And now for that job which calls upon your whole skill and your most delicate fingering; do not be afraid, though practice renders that, too, a comparatively easy matter. You have to fill up the box above the level of the flowers with sand, so that the flowers are completely embedded in it. By means of a tube or a funnel or a sieve, just accordingly, you can do it in such way that every particle of the flower rests in sand, and that your filling up shall not have crumpled or displaced the smallest petal. Of course, such a thing can be done only in a very slow way by a beginner.

And now take care not to shake your box, else the flower inside might get hurt. Carry it to a place both dry and warm, that all the moisture in the flower may pass into the sand, which being porous, is in turn acted upon and will let the moisture pass entirely out and get evaporated. Avoid, however, positive heat, or the colours of the flower will fade; whilst at too low a temperature the moisture in the flower will not dry quickly enough, and so rot it. The warmth should, as a general thing, never exceed 100°.

When you are sure that your flowers have fully dried—a thing a very little practice in touching the box will teach you—the thing is done. Open the box, and by holding it in a slanting direction, let so much sand run out that you can lift the flower by the stem; by turning it upside down, shaking it gently, and if necessary, blowing on it, all the sand will be removed, and you have the flower in its most perfect form. A little brittle, to be sure, in such a dry state as this, and, therefore, requiring careful handling. But a few days' exposure to the atmosphere will have imparted moisture enough to the flower to make it considerably less brittle.

You now see why we cannot do with the larger grains of sand; they would press unequally and spoil the flower, which for ever retains all the marks of such pressure; nor with the dusty particles of the sand, because they, as well as the soluble particles which we have removed by washing, would adhere to the hairy and velvety parts of the flower, would never be got rid of, and would materially impair the original beauty.

For the same reason glabrous flowers are not fit "subjects." The very newest feature, however, about this business, is that this discovery, how to preserve flowers in their natural state, is quite an old affair, long forgotten, and solely resuscitated by the increasing demand for bouquets.—(*American Gardener's Monthly.*)

THE MIXED SHRUBBERY AND ITS TREATMENT.

There are few things more neglected than the shrubbery. Planted very often to act as a screen or shelter, it is often allowed to become an entangled mass—the more robust-growing shrubs overtopping and eventually killing those of moderate growth; and, the whole struggling upwards, the bottoms become thin, and, are with the exception of the outside plants, quite devoid of foliage for a considerable height upwards. Now this state of things is by no means uncommon, and, as the front of such shrubbery, invariably hangs forward, and encroaches, perhaps, on space required for something else—perhaps a road-way or flower-border—it is at length determined, after a year or two's consideration of the matter, to cut the intruders back. Then comes the disfigurement, which every one finds fault with, but which, nevertheless, must be done; though by judicious management in years gone by this might, to a certain extent, have been avoided in those cases where the clump or belt is of sufficient size to admit thinning out the plants without exposing the objects it is meant to conceal. In a great many cases a rather severe thinning or cutting down must take place once in half a dozen years or so; and for some time the shrubs so operated upon certainly look badly. This, however, cannot well be avoided, but some little judgment is required to make this disfigurement of as short a duration as possible. To make the matter more plain, let us take one of the most common of all examples—the carriage-drive to a villa or residence of some one whose whole occupation does not exceed some two or three acres. To give concealment to the home, the carriage-drive curves from the public road towards it; both sides of

that carriage-drive being lined with evergreen shrubs, which the proprietor insisted at the time of planting to be brought so much forward at the convex part of the curve, to shut out the corner of his home from roadside lookers-on, that after the lapse of a few years the shrubs encroach so far as to kill the turf or other live edging which forms their legitimate boundary —by-and-by the road becomes narrowed; and eventually, some wet evening at the end of summer, the overhanging boughs shed their dripping load on some passer-by, who has sufficient influence to persuade the proprietor to have some of them removed or otherwise cut. Then comes the difficulty; for no one, however skilful, can effect the desired alteration without rendering the whole an unsightly object for some time; and this is often rendered still more so by being done at the wrong season. For be it remembered that it is evergreen shrubs we have to deal with, and not deciduous ones which may be cut with little difference in effect from October to the end of March:—Evergreens, that have been crowding on each other are different, as shall be explained.

When a mass of evergreens have been grown some years together the bottoms of most of them get naked, and what leaves there are, are at the points and if the shelter which these plants give each other be removed, they are unable to stand the severity of the season; or, in other words, if we remove all the plants surrounding the one intended to be left—say in November, it is ten to one but the winter will destroy, or at least disfigure, the one remaining; while all the winter, and most part of the next summer, the whole has a most miserable appearance. To avoid this, and also to make the unsightly period as short as possible, it is better not to cut anything down except in spring, the middle or end of March being a good time. The severest weather will be over then, and the growing period following soon after, the shrubbery quickly assumes its wonted summer garb; or, if the plants be much cut down, some summer-flowering plants inserted amongst them give the border a more pleasing appearance. But nothing must interfere with the growth of the shrubs. Creepers must not overrun them; nor must tall-growing plants, as Dahlias, Hollyhocks, &c., prevent their branches having full play in growth, especially in the autumn, when they require ripening to harden the young wood and foliage against the coming cold of winter. At the same time it must be observed that a judicious thinning ought to take place as well as a cutting down, the more common things being sacrificed, which in most cases is the common Laurel. But it is wrong to cut away all the deciduous plants; as Lilac, Syringa, Laburnum, and some others, are amongst the most handsome flowering shrubs we have, and they must always be allowed a place. Common Laurel to a certain extent may be removed, but not on too wholesale a fashion, as this plant's capabilities for effecting a quick and good shelter entitle it to respect. But as local circumstances usually point out the plants to be preserved, it is only necessary here to give a few remarks on the more common evergreen shrubs likely to want trimming in some way or other, premising that the shrubbery-border, or belt, be composed of various kinds of shrubs, all more or less injured by their crowding on each other.

Laurel, common.—Nothing in the evergreen way bears cutting down better than this shrub. It is certainly best to leave a branch or two with green leaves on it, and to cut the other either with the axe or saw down to about a foot from the ground; taking care to leave the cut part smooth, and not split downwards by cutting in that direction. To secure a branch with a few leaves on it to act as a sort of "feeder" to the plant, it is good practice to select an outside one, and to peg it to the ground by a hooked stick. This remark is equally applicable to all evergreen shrubs, and the pegged-down branch often fills up an unsightly gap. Plants of Laurel cut down and taken up may often be divided, and if they have good roots may make excellent plants. A dry soil suits the Laurel best.

Portugal Laurel.—This is a much more difficult plant to train into all the purposes we want of it, it being equally impatient of the knife and spade—in fact, it transplants badly:—the best time, perhaps, being September or May; but I have never been successful with it, although I have planted the common one every month in the year. Nevertheless, the Portugal Laurel will sometimes do well when cut down; and some plants here bear systematic pruning tolerably well, but as a rule, it ought not to be cut, and the plant can rarely be improved in appearance by doing so. It likes a stiffer soil than the common one; and when in health nothing can be more handsome. In planting, let it stand well back in the shrubbery, and let its outline be fairly and fully seen. The Common Laurel ought also to stand well back, and to fill up any openings that may be advisable to block out from view.

Laurustinus.—This favourite, flowering in autumn, winter, and early spring, has also the advantage of being converted into any shape; and, unlike the last-named shrub, is often the better for a little pruning at the proper time, as it has a tendency to become what gardeners term topheavy—the top or head enlarging much faster than the bottom branches grow. To prevent this, shortening in the head at times during the growth will do. As the plant bears the knife admirably, and when cut down speedily becomes a good useful bush again, it should have a place near the front, but not exactly in the line nearest the road or walk. It will grow on most soils, but likes a dry one best.

Holly.—The common variety, or, in fact, the whole of the family, are too handsome to be mutilated by the knife; and as they rear their heads over that of most other shrubs, let them have fair play at the bottom. The back of a shrubbery for the common, and the centre for the variegated kinds, will be the proper place. A rather stiff soil suits them best; but they are sometimes met with in a wild state on dry peaty soils: the latter, however, is an exception. The Holly transplants best in May, but it does not so speedily assimilate itself into its new quarters as some shrubs; but when once established it is a long-lived healthy tree, and when loaded with berries forms an object of interest, recalling to mind scenes of festivity and rejoicing widely different from those associating themselves with the tree which follows.

Yew.—This venerable tree ought never to be crowded into the mixed shrubbery. An isolated spot for it on the lawn is more befitting so sombre an individual; but it is perhaps the most tractable of all our evergreen shrubs or trees, and rarely succumbs to any description of treatment that leaves it some of its green leaves. Yew hedges of great antiquity abound in various places; and Yew trees almost co-eval with civilisation are also to be met with in places, but more especially in graveyards, where they stand in their hallowed sanctuary, connecting the past with the present. One of the most remarkable trees of this kind is not more than a mile from this place, being at Loose churchyard. The main bole of the tree is about ten feet high, but has long been hollow—in fact, a mere shell, with four or five openings into it, but all uniting at top. The circumference of this trunk at the narrowest part, between the root-claws and the breaking out of the limbs, is upwards of thirty-three feet, and some of the limbs (also hollow) must be near twenty; but the head of the tree is as healthy as it possibly was three or four centuries ago, and spreads over a large space of ground. The soil it is growing in is dry, with abundance of limestone in its immediate neighbourhood, if not also underneath it. Steep, almost inaccessible hills of a dry or chalky nature, are the birthplace of the Yew; but it will thrive pretty well on clay as well. The slow growth of the Yew unfits it for the mixed shrubbery, as it would speedily be overrun; and to plant it in the front would be to subject it to removal at a time when it was of most consequence to let it stand. It is therefore better as a single specimen plant; and, when wanted, it makes an excellent and durable hedge. J. Robson.

(*To be continued.*)

GLADIOLUS COLVILLII SPORT.

I have not seen any of the race sport in full like the specimen sent by "W. G.;" but in that section of the family it was not unusual to see one or two "selfs," or plain-coloured flowers, on a spike occasionally; but no whole spike with "selfs" like this is on record, as far as I am aware of.

It proves two things, and it may prove a third, which needs a proof. The first two are, that Gladiolus flowers bear carrying better than all other flowers after being cut; and that the flower-spikes of Gladioli will continue to flower, after being cut and carried a thousand miles, if they are placed in water in-doors, or in moist soil out in the garden, just as well as they.

Tricks upon travellers after this fashion are not uncommon among gardeners, although we seldom hear of them. I think I have told how Suchet, the gardener of the Emperor of the French, managed to dress up the shrubberies and bare places with cut flowers of Gladioli when Queen Victoria visited Fontainbleau, and made such a display with them that Her Majesty took to the fancy, and had Suchet's collection over to Osborne to begin with. And in the olden times, when flower gardening began to flourish

on the turf, one Donald Beaton took to "greening" the "raw" beds in winter with boughs and branches of evergreens, and actually recommended the plan for public custom, till his customers were so ashamed of "that way," and of bare beds in winter, that they took to plant them over with evergreen shrubs and bushes instead.

But the third thing which may be proved by this "self," or one-coloured sport *Gladiolus Colvillii*, is of a highly scientific and social character. In the first place, it is unsocial for one class of persons to write a fact is so in all earnestness, and for another class to write that it is not so in reality or in truth; and in the second place, a scientific inquiry by means of this whole sport might settle the difference between these two classes. Is this an evidence of *Gladiolus Colvillii* reverting to one of its parents at the mature age of thirty-four or thirty-five years? Does reversion go back step by step, or *per saltem*—by one loup or jump? or how? I happen to know the father, the mother, and the grandmother of *Gladiolus Colvillii;* and this sport has parted with the family colour of its father without getting into the form and formality of its mother or grandmother, nor yet to the true colour of either. *Blandus*, a lovely-marbled and ivory-white wild kind from the Cape, was the grandmother of *Colvillii* and *cardinalis*. *Blandus* was the mother; *cardinalis* being both the father and grandfather in this cross. Now, if this sport is a reversion on the mother's side, it must take more steps to get back to the original type than it took in arriving at the merit of a *Colvillii*. This is the only instance within my knowledge of any cross-bred seedling taking the one and only proper way to prove the doctrine of the reversion of cross seedlings. We cannot deny anything about this doctrine but the want of examples to prove it. Here is half proof. Seed it, and see if it will give *blandus* by its own pollen.—D. Beaton.

NEW AND RARE PLANTS.

Alocasia metallica (*Bronzed-leaved Alocasia*).

Received from Borneo by Messrs. Low, of the Clapton Nursery, It "exhibits a foliage and hue which nothing of the kind can exceed—there is a degree of metallic lustre on the ample foliage which must be seen to be understood."—(*Botanical Magazine*, *t.* 5190.)

Acacia Drummondi (*Drummond's Acacia*).

Native of Swan River. Flowers pale lemon yellow in cylindrical spikes.—(*Ibid.*, *t.* 5191.)

Callixene polyphylla (*Many-leaved Callixene*).

Known also as *Luzuriaga erecta*. Native of Cape Tres Montes. in the extreme south of Chili. It belongs to the same natural family as the Lily of the Valley, having like it white flowers; but these resemble more in form the flowers of *Deutzia scabra*. It may be kept in a cool greenhouse or common frame.—(*Ibid.*, *t.* 5192.)

Oncidium longipes (*Long-stalked Oncidium*).

Native of Brazil, reared by Messrs. Loddiges. Its flowers are more bright in colour than the *O. longipes* of Dr. Lindley. It blooms in April, and the flowers, yellow and purple, continue long.—(*Ibid.*, *t.* 5193.)

Pteris cretica (*Cretan Pteris*).

It has had many other specific names. Although called Cretan, yet it is found from Turcomania throughout southern Europe, the Mediterranean Islands, Arabia, Abyssinia, and even India, Pacific Islands, and in both North and South America. So that no other Fern is so cosmopolitan, and fully illustrates the unadvisability of calling any plant after the place where it was first discovered. Its pinnæ are striped with pale and dark green, somewhat after the manner of Ribbon Grass.—(*Ibid.*, *t.* 5194.)

MEETING of the ENTOMOLOGICAL SOCIETY.

The July meeting of the Entomological Society was, as is generally the case at this season of the year, not fully attended, nor were the communications made to the Society of the ordinary interest; indeed, the experience of several past years has shown that the meetings in July, August, and September might be omitted without much detriment to the cause of science. The chair was occupied by the President, J. W. Douglas, Esq.

Mr. Stevens exhibited a portfolio containing a portion of a very extensive collection of European Lepidoptera, formed by transferring the scales from the wings of the insects to paper by an unknown process, by which the form and markings of the species were beautifully preserved, the body being subsequently represented by colours. It was stated that the collection had been formed in Germany, and had occupied the life of its possessor, by whom it had been sent to this country for sale.

Mr. Ianson exhibited some rare Scottish Coleoptera, including *Otiorhyncus septentrionis*, *Scolytus Ratzeburghii*, &c., lately taken in Perthshire.

Mr. MacLachlan exhibited a beautiful specimen of *Chrosis Audouiniana*, from Darenth Wood, Kent; and Mr. Rye, specimens of *Laccophilus variegatus*, taken near Pevensey by the Rev. H. Clarke.

The President exhibited some rare Coleoptera, found in the exuding sap of trees infested with the larvæ of the Goat Moth; all of small size, and belonging to the family Staphylinidæ. Also a specimen of *Conopalpus testaceus*, a very rare Beetle, reared from rotten Oak branches during the past spring.

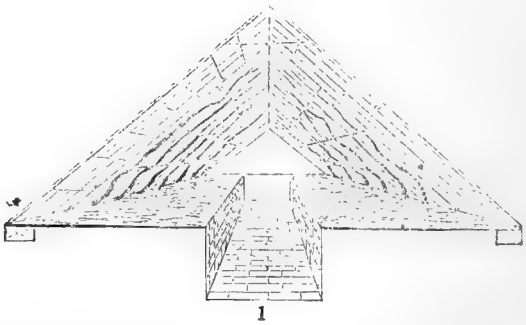
Mr. Lewis exhibited *Thiasophila inquilina* found in the nest of *Formica fuliginosa* near Charlton; and Mr. Ianson a specimen of *Homalota subterranea* (a species hitherto only found in France) taken in the nest of *Formica flava* at Mickleham.

The Secretary read a communication from R. L. Guppy, Esq., of Trinidad, on the habits of a species of Water Scorpion (*Ranatra sp.*), found in a stream in that island.

ORCHARD-HOUSES.

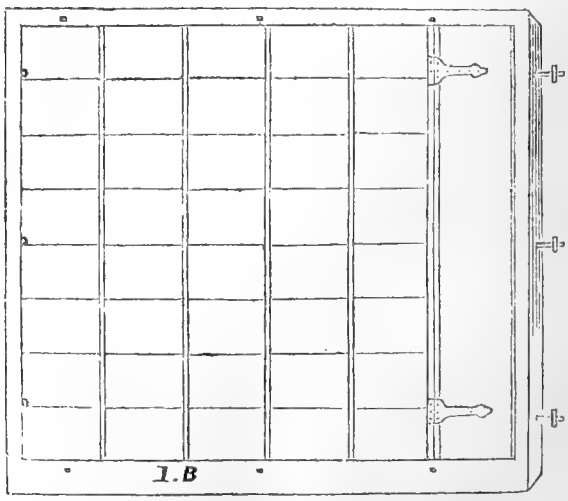
With the accompanying sketch I offer a few remarks upon the construction, adaptability, and various merits. Nos. 1, 2, and 3 are plans of my own invention, which I have had erected in various parts, and very successfully. *Fig.* 1 *a*, is a section and interior view, adapted for either Vines or Peaches, can be erected either permanently or temporarily. The roof is in separate

Fig. 1 *a*.



1. Path.
The wire for training the trees to runs from the top to the bottom of the house. A very cheap and convenient house.

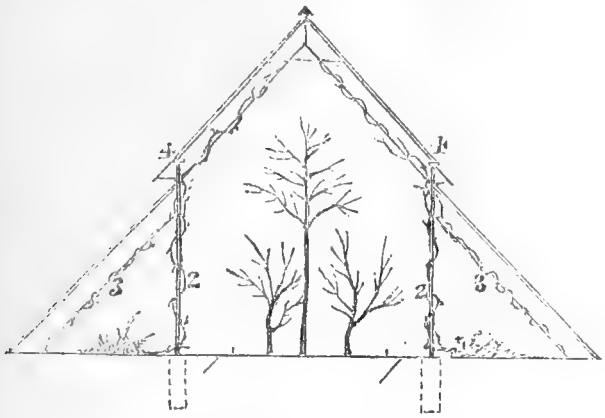
divisions, and bolted together, as shown in *fig.* 1 B, and screwed



upon the wall-plate, with a wooden shelter or lap for ventilation, same width as glass. The path is sunk below the surface to

economise space. This is a very convenient portable house, requiring but a few minutes' labour to erect; and when not required in the winter season, can be stored away: care being taken to have the screws well oiled at all times. The trees are benefited by such exposure, as it tends to ripen the wood still better.

Fig. 2.

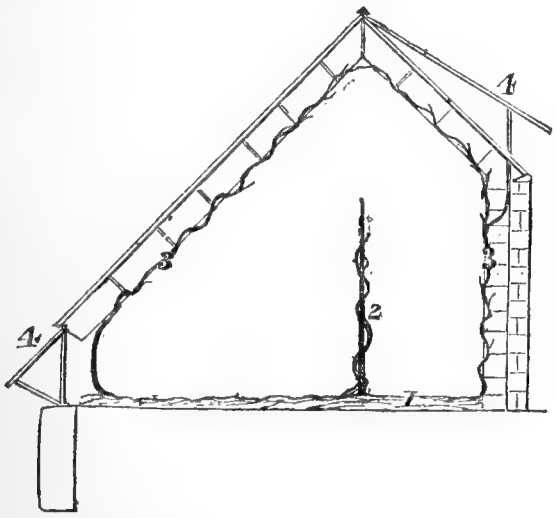


1. Paths.
2. Iron pillars supporting rafters on which Vines are trained.
3. Trellis for training Peaches, &c.
4. Narrow sashes for ventilation.

The whole length of the centre is planted with standard and dwarf trees—such as Peaches, Figs, &c.

Fig. 2 comprehends a span and two lean-to houses, by means of which much space is gained. In all cases the rafters and bars are fixed, and ventilation admitted by means of side-lights or flaps. Narrow lights are by far the neatest and best. A door opens in the centre of each end.

Fig. 3.



1. Path.
2. Upright trellis for training trees to.
3. Wires for training Vines upon.
4. Moveable sash with back for ventilation by means of an iron rod; the front is wooden flaps.

Fig. 3 is a span-roofed house, erected against a wall; the ventilation is given by means of front flaps, and every alternate three feet of the back-lights being made to move up on hinges.—(*American Gardener's Monthly.*)

WEATHER IN JUNE AT FROME.

THE weather during the past month was something extraordinary, yet it has scarcely been mentioned in THE COTTAGE GARDENER. Therefore, just to allow distant friends the opportunity of comparing notes, will be my apology for troubling you with this.

The very growing weather we had in May had nearly brought up the arrears of the early spring, and at that period everything was looking most prosperously; and the month of June came in with a fine warm day, and, doubtless, all hands were busy getting out their bedding stuff, and so was I, though it had better have remained in other and warmer quarters; for at the end of the month a great many looked as though it had been March instead of June, and some perished with the wet and cold. Annuals that were sown early and put out in March and April, did well, and all other things that were well established in the ground. The wind blew a gale nearly every day at some part of the day, and it has very much injured the foliage of large trees, and the young shoots of small fruit trees. Rain fell here (Frome), on twenty-four days, and to the extent of 7·006 inches; and as this is nearly as much again as I have registered in any one month since I have been registering it, I should take it as a favour if any of your readers that have registered it for any number of years would say what is the average for June, or has been during their knowledge. I saw several samples of Potatoes with the disease in the month of June; but what is brought into market now are very clean and a good sample. Though in the haulm it is spreading fast, I have not found one in our own garden yet, although visible in the haulm; and, notwithstanding the unfavourableness of the weather, and the apprehension of people generally, the country round here is looking as prosperously as a reasonable person may desire. I subjoin my notes on the month of June for three years.

		Degs.	Inches.
1858.	Highest day temperature	89	
	Lowest night ditto	48	
	Average day ditto	76½	
	Average night ditto	54	
	Rain		0·096
1859.	Highest day temperature	79	
	Lowest night ditto	42	
	Average day ditto	71½	
	Average night ditto	51	
	Rain		1·074
1860.	Highest day temperature	69	
	Lowest night ditto	44	
	Average day ditto	62½	
	Average night ditto	49	
	Rain		7·006

—THE DOCTOR'S BOY.

DO MARTENS INDUCE BUGS?

A COLONY of Martens have taken a great partiality to my house, under the eaves of which I have counted sixteen nests. I am, however, informed by a neighbour, that if I allow them to remain my house will swarm with "house bugs," as he himself in removing five nests found them full of these vermin.

I am therefore anxious to ascertain if there is truth in this assertion, as, although "as strangers I have given them welcome," I should consider them "more free than welcome," if this charge can be substantiated against them.—ONE WHO LIKES A GOOD NIGHT'S REST.

[We do not believe that there is any truth in this charge against the Marten. The bugs we should rather think went from the house into the nests. The Earl of Traquair made no complaint against these birds of inducing vermin, though, as Macgillivray says, "He was the greatest patron of the Martens that I have met with. Having with them shared his lordship's hospitality in the autumn of 1839, I counted under the eaves, and in the corners of the windows of Traquair House, 106 nests, all tenanted, besides several that had been deserted, injured, or taken possession of by Sparrows."—EDS. C. G.]

NEW CUCUMBER.—We have received from Messrs. Carter and Co., of Holborn, a specimen of their *Carter's Improved Champion.* It is of the same race as *Carter's Champion.* It is 20 inches long and 8¾ inches in girth, of a smooth and even surface, and a pale green colour. Messrs. Carter inform us, that it is prolific, and good for early and general use, and double the size of the old sort.

TO CORRESPONDENTS.

SEEDLING INTERMEDIATE STOCKS (*W. Melville*).—These seedling Stocks came as fresh as when they were gathered, and retained their gloss and beauty for a week in water. They are much finer and more showy than Mr. Melville modestly represents. We can compare the finest of them

to nothing so well as the new crimson double Peach, which Mr. Fortune found and sent home from China. The centre spike lacks aught of the Brompton Stock but stature, and each of these side-shoots is a good "Stock" in itself. We have no hesitation in recommending them as the best that has been done in the whole race.

Name of Strawberry (*A. P., Brixton*).—Your Strawberry is a very finely grown *Sir Harry*. From the fact of your *British Queen* being equally vigorous, your soil must be epecially adapted to Strawberries.

Insect on Goose Grass.—The short, thick, blue-black insects found by Captain Ward on the Goose Grass, are the larvæ of the common Bloody-nosed Beetle (*Tomascha tenebricosa*). They have burrowed into the earth to undergo their transformation.—W.

Excluding Worms from Pots (*H. D.*).—A disc of the finely perforated zinc placed over the hole in the bottom of the flower-pot would exclude worms, even without the well formed by the dibble depicted in our pages a few weeks ago.

Clump of Trees for the Surry Hills (*J. Long*).—As you require shade as well as ornament, plant Black Poplar and Birch in the centre; next them Laurustinus and Portugal Laurel; and outside, the Evergreen Barberry (*Berberis aquifolium*). A similar plantation is thriving on an exposed chalk hill near Winchester.

Name of Shrub (*E. M. G., Calne, Wiltshire*).—The name of the shrub, of which you enclose a flower, is *Cassia corymbosa*.

Spots on Muscat Grape Berries (*R. E.*).—The fault is evidently at the roots; they, having struck down into the wet adhesive soil, are exercising an injurious influence on the fruit. The only remedy is, in the autumn to take out the whole of the soil from your borders, disturbing the roots as little as possible, and make a concreted floor twenty or twenty-four inches below the surface, and fill the border up with fresh soil. There is no necessity at all for destroying your Vines, which will soon regain a healthy condition.

Names of Plants (*R. S. M.*).—No. 2 is the common Cranberry, *Oxycoccus palustris;* but No. 1 we cannot make out from the specimen sent, though we suspect it to be the Bleaberry, *Vaccinium uliginosum*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

July 31st. Newmillerdam.

August 15th. Omskirk and Southport. *Sec.*, Mr. James Spencer, Ormskirk. Entrie close July 31st.

August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 5th. Keighley Agricultural Show. *Sec.*, R. Fawcett. Entries close August 29th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

ARE FOWLS WHOLESOME WHICH ARE FED ON PUTRID MEAT?

Such is the question considered by Dr. Duchesne, in the January number for 1859, of the *Annales d'Hygiène Publique*.

It is well known that man cannot indulge in putrid meat with impunity, and numerous cases are on record where accidents have occurred from this kind of food. Little is known, however, of the effects produced by the flesh of animals otherwise in good health, but nourished with flesh in a state of putrefaction. Certain animals can, undoubtedly, be nourished on such putrid matters; but it is important, in a hygienic point of view, to determine the modifications which the exclusive use of putrid viands may produce in the quality and the preservability of fowls destined for the market.

On the occasion of a complaint against a farmer in the neighbourhood of Paris, Dr. Duchesne visited his establishment on a warm day in July, and towards the afternoon. The food of the poultry he found to consist of flesh in a state of putrid decomposition, which had been obtained from the slaughter-houses of Paris. The fat is first removed by cooking, and bran is added; and this mixture is given morning and evening to the fowls, who fight for it with avidity. A very fetid odour came from the barrels in which the food was contained, from the vessels where it was supplied to the fowls, and also from the ground round about them. The fowls, however, appeared to be in perfect health. Dr. Duchesne supplied himself with three eggs laid that day, and also with a fowl and duck of a year old, which were killed before him. In three hours' time, the poultry gave out a very strong odour, and the intestines were so offensive that they had to be removed to a distance. Decomposition rapidly set in. The fowl, at the end of twenty hours after being cooked, had an unpleasant, strong taste; and the duck at the end of twenty-four hours was in such a state that it could not be eaten. Next day, when the flesh was cold, and the smell abated, portions of the duck were partaken of by the servants. The eggs, too, were found, if kept a reasonable time, to become very unpalatable. In fine, it was shown that, though fowls nourished in this way were apparently healthy, and could be eaten at a pinch without great inconvenience, yet that it was most probable that the continued use of such articles of diet would be attended with danger. The Council of Health at once interdicted the sale of fowls fed in this objectionable manner.

Dr. Duchesne continued his inquiries at the great knackery of Aubervilliers, where pigs and fowls are fed in great numbers on flesh raw and cooked, and where similar animals are reared on a mixed food, consisting of flesh and grain. The result of his observations is embodied in the following conclusions:—

1. Fowls and pigs may be fed on sound flesh, raw and cooked; on flesh, raw and cooked, of animals affected with contagious diseases, as glanders, malignant pustule, hydrophobia, &c.; and even on flesh, raw or cooked, in a very advanced state of putrefaction, without any alteration in their health.

2. Chickens are reared with difficulty, if their food be restricted to flesh, raw or cooked, even when sound; and a larger number of them perish than when fed on ordinary kinds of food.

3. The eggs of fowls thus nourished are as palatable as the eggs of fowls nourished in the common way. The shell, however, is thinner, and more easily broken.

4. The flesh of fowls and pigs nourished on flesh, raw or cooked, is softer, more difficult to preserve, and the fat is yellow and more diffluent.

5. The doctor has still doubts as to the absolute wholesomeness of fowls and pigs fed on animals dying of glanders, &c., and recommends that the use of the flesh of such animals should be prohibited for the rearing of fowls and pigs.

6. The use of flesh in a state of putrefaction, for similar purposes, should be absolutely prohibited as unwholesome.

7. Fowls should not be fed too long or too abundantly on worms, caterpillars, beetles, &c., as such food communicates a strong taste to the flesh.

8. The continued use of flesh, otherwise healthy, and either raw or cooked, ultimately injures the growth of the fowls, and the quality of their flesh.

9. The best method of rearing undoubtedly is, to give flesh but once a-day, and to finish with a meal of grain.

10. For market use, the use of flesh should be stopped, and the fowls restricted for some time to the use of a vegetable diet. —*Veterinarian.*

MERTHYR TYDVIL FOURTH ANNUAL POULTRY SHOW.

This was held in the Market House, at Merthyr, on the 18th and 19th inst. The following prizes were awarded by the Judge, Mr. Baily, Mount Street, Grosvenor Square.

OLD BIRDS.

Dorkings.—Prize, J. Buckley, Llanelly.

Spanish.—First, J. Martin, Claines, Worcester. Second, J. K. Fowler, Prebendal Farm, Aylesbury. Highly Commended, J. R. Rodbard, Aldwick Court, Wrington, Somerset. Commended, J. Buckley, Llanelly.

Game.—First, R. T. Crawshay, Cyfarthfa Castle. Second, W. P. Boghurst, Frating Abbey, Essex. Highly Commended, R. W. Price, Williams' Field, Caermarthen.

Cochins (Partridge, Cinnamon, and Buff).—First and Second, R. T. Crawshay, Cyfarthfa Castle.

Hamburghs (Gold and Silver-spangled).—First, R. T. Crawshay, Cyfarthfa Castle. Second, W. Cuff, St. Fagans.

Hamburghs (Gold and Silver-pencilled).—First, J. Martin, Claines, Worcester. Second, J. Llewellyn, St. Fagans. Highly Commended, E. Payne, Cardiff; J. Martin; J. T. Williams, Merthyr.

Hamburghs (Black).—Prize, R. H. Nicholas, Malpas, Monmouth.

Game (Malay and Indian).—First, C. Ballance, Taunton. Second, J. J. Fox, Devizes.

Polands (any sort).—First, R. T. Crawshay, Cyfarthfa Castle. Second, W. Williams, Bryn Mill Lodge, Singleton, Swansea.

Bantams (Gold and Silver-laced).—First, Miss G. Everett, Gibraltar Cottage, Monmouth. Second, R. T. Crawshay, Cyfarthfa Castle.

Bantams (any other sort).—Prize, E. Payne, Cardiff.

Any distinct breed not before mentioned.—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, H. Leworthy, Barnstaple, Newport.

YOUNG BIRDS OF 1860.

Dorkings.—First, J. H. Thomas, Bewell House, Hereford. Second, Miss I. Morgan, Barry, near Cardiff.

Spanish.—First and Second, J. R. Rodbard, Aldwick Court, Wrington. Highly Commended, C. J. Thomas, Bewell House, Hereford. Commended, E. Payne, Cardiff.

Game.—First, J. Martin, Claines, Worcester. Second, R. T. Crawshay, Cyfarthfa Castle.

Cochins (Partridge, Cinnamon, and Buff).—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, R. T. Crawshay, Cyfarthfa Castle.

Hamburghs (Gold and Silver-spangled).—First, R. T. Crawshay, Cyfarthfa Castle. Second, E. W. Scale, Troedyrhiw.

Hamburghs (Gold and Silver-pencilled).—First, J. Llewellyn, St. Fagans. Second, E. Payne, Cardiff. Highly Commended, E. Payne; J. Llewellyn. Commended, J. Martin, Claines, Worcester.

Hamburghs (Black).—Prize, R. T. Crawshay, Cyfarthfa Castle.

Polands (any sort).—Prize, J. Cox, Hafod, Swansea.

Bantams (any sort).—Prize, Miss I. Morgan, Barry, near Cardiff.

SINGLE COCKS.

Dorkings.—First, D. Williams, Courtland Terrace. Second, R. T. Crawshay, Cyfarthfa Castle.

Spanish.—First, R. T. Crawshay, Cyfarthfa Castle. Second, J. Carr, Hafod, Swansea.

Game.—First, W. Crawshay, Treforest. Second, R. T. Crawshay, Cyfarthfa Castle.

Geese (Old Birds).—First, R. T. Crawshay, Cyfarthfa Castle. Second, R. Fothergill, Abernant, Aberdare. Highly Commended, R. W. Price, William's Field, Caermarthen; J. Buckly, Llanelly.

Goslings.—First, R. Fothergill, Abernant, Aberdare. Second, E. Payne, Cardiff. Highly Commended, E. Payne. Commended, D. Williams, Merthyr.

Ducks (Aylesbury).—First and Second, J. K. Fowler, Prebendal Farm, Aylesbury. Commended, J. Buckley, Llanelly.

Ducks (Rouen).—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, R. T. Crawshay, Cyfarthfa Castle.

Ducks (Black).—First, G. S. Sainsbury, Rowde, Devizes. Second, R. T. Crawshay, Cyfarthfa Castle.

Ducks (Muscovy).—Prize, R. T. Crawshay, Cyfarthfa Castle.

Turkeys (Old Birds).—First, W. Crawshay, Treforest. Second, R. T. Crawshay, Cyfarthfa Castle.

Turkeys (Birds of 1860).—First, R. T. Crawshay, Cyfarthfa Castle. Second, R. Fothergill, Abernant House.

Galinæs (Old Birds).—Prize, R. T. Crawshay, Cyfarthfa Castle.

WORKMEN'S PRIZES.

Cock and two Hens (any breed).—First, H. Bowden, Penydarran. First, W. Kedart, Penydarran. Two Second, W. Kedart, Penydarran. Highly Commended, H. Bowden.

Three Ducks of 1860.—Prize, H. Bowden, Penydarran.

Gander and two Geese.—First, D. Bevan, miner, Merthyr. Second, H. Bowden, Penydarran.

Two Goslings.—First, H. Bowden, Penydarran. Second, D. Bevan, miner, Merthyr.

Couple of Long-eared Rabbits.—Prize, T. Pugh, Penydarran.

PRECOCIOUS DORKING PULLET.

A circumstance has come to my knowledge which would probably interest your readers and those especially who are on the *qui vive* for anything that may be new in connection with poultry.

A friend of mine resident nine miles from town, a great lover of the gallinaceous tribe, has a very fine strain of Grey Dorkings. A pullet amongst them, hatched on the 27th of January, at the present moment a fine and large bird, laid its first egg in the hen-house on the 20th of June, and up to the 1st of July had given eight eggs. This is pretty well; but it is quite believed, although it cannot be verified, that she laid astray a fortnight earlier, as her comb was very red, and she was continually missing for an hour or two, and when she did make her appearance it was generally with a rush as though straight from her hiding place. Those who have noticed the idiosyncracies of fowls, will understand this as significant of having just fulfilled her duty as an egg-producer.—H. S. Watson, *Tollington Park.*

PRESCOT POULTRY SHOW.

This was the seventh Annual Meeting of this Society. It is true, that on some previous occasions the entries were more numerous; but it is equally certain, at no former Exhibition at Prescot has the quality of the poultry generally been so excellent. The Show throughout was a most successful one; the Committee strove all that men could do to meet every exigence, and the weather proved as favourable as could be desired. The poultry was exhibited under a very commodious tent, with the exception of the water fowls, which seemed unusually happy from being placed on the grass in very large pens, a privilege they evidently greatly enjoyed.

On entering, the *Spanish* were the first class that met the eye of visitors, and they were a goodly array. Mr. Teebay, of Preston, as might readily have been expected, here swept the board of both prizes. To say anything as praise of birds now so well known would be superfluous; we will content ourselves, therefore, by mentioning that the condition of both pens was as good as ever, although for the last few months they have been almost continuously in the exhibition pen. In *Dorkings* only two pens were entered, either of which were quite able to support the high reputation of Captain Hornby's strain, consequently the prizes proved a mere walk over to that gentleman. It seems the entries of this truly useful variety were thus limited, from the conviction that seemed to exist on the minds of all Dorking breeders, that the desire of success at Prescot against the Knowsley birds left not a single hope for any one. From the excellence of the two pens of birds sent by the Captain, the best possible proof was afforded that he was determined none should rob him of a laurel at his very door, and the policy of his rivals "not throwing the entrance money away" was confirmed. The Buff *Cochins* were scarcely so perfect as we had hoped for, but the Partridge-coloured ones were marvellously good; Mr. Stretch and Miss Musgrove being the prize-takers. In *Hamburghs* both varieties of Spangled formed one class, as both varieties of Pencilled did another. The two first prizes were easily secured by Mr. W. C. Worrall with (Golden) birds in these two classes. It would be useless to hope for better. Messrs. Dixon and Hyde severally taking second position with exceedingly good pens. In *Polish*, Mr. Dixon had no competitor. The *Game* classes were as good as any in the Show-tent, and the entries surpassed all others numerically, the greatest emulation being manifested among exhibitors. Captain Hornby here held his own, both in the adult Cock-and-two-Hens class, and also in Chickens, with wonderfully good specimens; besides which, he still added yet a greater triumph, by winning the much-coveted premium "for Single Game Cocks of any age or colour," with the self-same bird, we believe, so recently successful at the Sheffield Show. Mr. J. B. Chune, of Coalbrookdale, exhibited a very excellent Black Red, which took second position. In the *Game* classes several first-rate pens (otherwise considered), lost every chance of success from being improperly matched as to colour of legs; and it struck us also as something extraordinary, that some three or four cocks were exhibited, which being what is called "Duck-footed," were without a hope of winning—birds thus malformed are alike useless for the show-room or cock-pit. In the class for "any variety of Chickens except Game," the competition was of so high a character, that the Judge, Mr. Edward Hewitt, of Spark Brook, Birmingham, declined to give precedence to any of *three* pens (the varieties being Golden Hamburgh, Black Spanish, and Grey Dorkings), on the grounds "that all were perfect, quite capable of winning in their respective classes had such been appointed, and that, consequently, to give any preference would be only an act of mere caprice on his part." The Committee very handsomely met this unexpected contingency, by at once allowing three *equal* first prizes to be apportioned them, and which, undoubtedly, each and all richly merited. The *Bantams* all competed together, Mr. H. Worrall taking the lead with the best pen of Brown Reds we ever met with. This colour at present is rarely attainable in Bantams; consequently, they proved a very attractive object to amateurs. Mr. Burnett's second-prize Black Reds, were an especially good pen.

Our readers will feel but little surprised to hear that Mrs. Seamons, of Aylesbury, easily secured both prizes for Aylesbury *Ducks.* They were very fine. Mr. Fowler took the lead in Rouens. In this class exhibitors should be careful to select birds of the true colour as to bills, as neglect in this particular is certain to entail want of success. Some exquisite specimens of Mandarins and Shell Ducks were shown in the "variety class."

In *Bantam Cocks* the rivalry was extreme; but not a few of the best birds had unfortunately just commenced moulting. Mr. Moss, of Liverpool, gained the principal laurel with a beautiful Grey, and Mr. Bayly, of Biggleswade, pressed very closely with a very superior Black Red; most of the birds were very excellent to usual.

We now come to the *Pigeons*, and they proved excellent. Our space, however, will only allow of very brief comment. Never have we hitherto seen so good a pair of *white* Owls as those shown by Mr. Worrall, they will be hard to beat anywhere. The Carriers of Mr. D. Thwaites were most perfect pens, and deservedly gained both prizes. The Fantails were worthy of favourable mention; likewise a peculiarly beautiful pen of Powters, the property of Lady Emma Stanley, which were very well described by a lady-visitor as being a "perfect salmon colour." The "variety class" proved so good as to elict from Mr. Hewitt a high commendation to every pen in the whole class, exclusive of the winning ones.

The Exhibition was well attended, and everything connected with the proceedings throughout was most satisfactory. We append the prize-list.

Spanish.—First and Second, R. Teebay, Fulwood. Highly Commended, J. Dixon, Bradford. Commended, Capt. W. W. Hornby, R.N., Knowsley.

Dorkings.—First and Second, Capt. Hornby, Knowsley Cottage.

Cochin-China (Cinnamon or Buff).—First, W. Dawson, Hopton Mirfield. Second, Capt. Hornby, Knowsley Cottage. Commended, T. Stretch, Bootle.

Cochin-China (any other variety).—First, T. Stretch, Bootle. Second, Miss V. W. Musgrove, Aughton.

Hamburghs (Golden and Silver-spangled).—First, W. C. Worrall, Knotty Ash. Second, S. H. Hyde, Ashton-under-Lyne. Highly Commended, J. Dixon, North Park, Bradford; R. Teebay, Fulwood, near Preston.

Hamburghs (Golden and Silver-pencilled).—First, W. C. Worrall, Rice House, Knotty Ash. Second, J. Dixon, North Park, Bradford.

Polish (any variety).—First and Second, J. Dixon, North Park, Bradford.

Game Fowl (Black-breasted and other Reds).—First, Capt. Hornby, Knowsley Cottage. Second, G. W. Moss, the Beach, Aigburth. Highly Commended, J. Holme, Knowsley. Commended, Mrs. Anne Berry, Fall Lane, Prescot; H. Worrall, West Derby; T. G. Gaye, Kirkby Station; H. Parker, Wellington, Salop.

Game Fowl (any other variety).—First, J. B. Chune, Coalbrookdale. Second, H. Worrall, Spring Grove, West Derby. *Chickens (any variety).*—First, Capt. Hornby, Knowsley Cottage. Second, H. Worrall, Spring Grove, West Derby. Commended, G. W. Moss, the Beach, Aigburth; J. Holme, Knowsley.

Chickens (any variety except Game).—Prize, J. Dixon, Bradford (Hamburghs). Prize, Capt. Hornby, Knowsley (Dorkings). Prize, S. H. Hyde, Ashton-under-Lyne. Highly Commended, W. Dawson, Hopton Mirfield. Commended, Mrs. M. Seamons, Hartwell (Dorkings).

(Three equal first prizes were awarded in this class at the suggestion of the Judge, all three pens being perfect of their kind.)

Bantams (any variety).—First, H. Worrall, Spring Grove, West Derby. Second, T. Burnett, Hutton, near Preston. Highly Commended, T. H. D. Bayley, Biggleswade; Mrs. W. C. Worrall, Rice House, Knotty Ash.

Ducks (Aylesbury).—First and Second, Mrs. M. Seamons, Hartwell, Aylesbury. Highly Commended, T. Burnett, Hutton, Preston.

Ducks (Rouen).—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, Capt. Hornby, Knowsley.

Ducks (any other variety).—First, T. H. D. Bayley, Ickwell House. Second, J. Dixon, Bradford (Mandarin Ducks). Highly Commended, J. Dixon (Grey Call); F. W. Earle (Buenos Ayres). Commended, G. S. Sainsbury, Rowde, Devizes, Wilts (Black East Indian Ducks).

Single Game Cock.—First, Capt. Hornby. Second, J. Chune, Coalbrookdale. Highly Commended, Capt. W. Hornby. Commended, J. Berry, Fall Lane, Prescot; G. W. Moss, the Beach, Aigburth; J. Cook, Eccleston; E. Worrall, Knotty Ash House; T. Burnett, Hutton, Preston.

Single Game Bantam Cock.—First, G. W. Moss, the Beach, Aigburth. Second, T. H. D. Bayley, Ickwell House, Biggleswade. Highly Commended, T. T. Parker, Adlington Hall, Chorley; R. Hawksley, jun., Southwell, Notts. Commended, M. Turner, Preston; H. Worrall, Spring Grove, West Derby; T. Burnett, Hutton, near Preston.

Pigeons.—*Carriers.*—First and Second, D. Thwaites, Rock Ferry (Black and Dun). Commended, E. Worrall, Knotty Ash House; H. Yardley, Birmingham. *Balds.*—First and Second, J. Sephton, Scotch Lane, Prescot. Highly Commended, H. Child, jun., Birmingham. *Beards.*—First, J. Sephton, Scotch Lane, Prescot. Second, J. W. Edge, Acton New Town. Highly Commended, T. C. Brierly, Gedling, near Nottingham. *Runts.*—First, H. Child, jun., Birmingham. (Second no competition.) *Owls.*—First, E. Worrall, Knotty Ash House. Second, H. Child, jun., Birmingham. *Fantails.*—First and Second, H. Child, jun., Birmingham. Highly Commended, J. Holme, Knowsley. *Powters or Croppers.*—First and Second, D. Thwaites, Rock Ferry. Commended, Lady Emma Stanley, Knowsley. *Any other New or Distinct Variety.*—First, J. W. Edge, Acton New Town. Second, H. Child, jun., Birmingham. Highly Commended, S. Menzies, Birkenhead (Frillbacks); Lady Emma Stanley, Knowsley (Shielol Pigeons); D. Thwaites, Rock Ferry (Dragons); H. Child, jun.; E. Worrall, Knotty Ash House (Almonds and Turbits); J. C. Brierley, Gedling (Frillbacks).

DISEASED SPANISH FOWLS.

May I trouble you to inform me the reason why my Spanish fowls should, when in the act of pecking, emit a liquid from the mouth having the appearance of water, which they appear eager again to devour, and what can I do to remedy it? They have a run of twelve yards square to every eight fowls. The Cochins do not appear to be similarly affected, although fed the same. I fancied it might arise from not giving sufficient food, although the grain I do give is of the very best description. Oats weighing 46 lbs. to the bushel. Of course, other things occasionally, but not much green food. Is it weakness? They look healthy otherwise.—A Constant Reader.

[There would appear to be too much sameness in your style of feeding. The oats are very good, but they would be far more profitable if they were ground. By grinding we do not mean being made into fine meal, but the whole of the corn ground as fine as may be, and nothing taken from it. By this process your bushel would feed twice as long as it will whole. It is, no doubt, from some injudicious treatment that your fowls have become in a very fevered state, and this causes them to drink an inordinate quantity of water. They have not the power of retaining it when their heads are down, and their crops being too full, it returns. This may be tested at any time, by keeping a fowl for a time without water, then allowing it to drink as much as it will, and then holding it up by the legs. The water will pour from it. Your first treatment will be, to give each fowl a table-spoonful of castor oil, next to feed sparingly on the ground oats mixed with water twice every day. Let them have plenty of lettuces to eat, and if they still seem disposed to drink to excess, let them have water only at intervals of two hours, and but little at a time. This will cure them.]

SUSSEX CATTLE, IMPLEMENT, AND POULTRY SHOW.

(*From a Correspondent.*)

This Meeting was held at Chichester, on Thursday, the 19th day of July. Owing to the rain in the afternoon there were not so many visitors as would be expected had it been fine. A larger show of poultry was brought to the Show than at any other time. The following are the details of the most important classes of the poultry, which we are compelled to send you with a report of the decision of the Judges, which we conceive most important.

Dorkings.—Mr. Blunden, of Arundel, carried off the first prize, closely followed by Mr. Chas. Bedwell, jun., of Iford, near Lewes, who obtained the second prize. The last-named gentleman's hens were far superior in all points to those of Mr. Blunden. Mrs. Dixon and E. C. Legge, Esq., were also exhibitors. Mr. Blunden exhibited a very fine coop of young Dorkings, there being no prize for birds of 1860. *Spanish* in all cases were very good, and considering the time of the year, they looked extraordinarily well. Mr. Jenner, of Lewes, carried off the honours in this class. A gentleman of Arundel carried off the second prize; but there were birds far superior to that gentleman's belonging to Mr. Chas. Bedwell, jun., which neither took a prize nor a commendation. This took the attention of the public much who were able to judge for themselves. Such a result as was given yesterday, is the most convincing proof of the non-judgment of the Judges. The next class we arrive at is *Game*, owing to the non-appearance of *Cochin-Chinas*. The first prize for Game was given to a cock and two hens; but we are very strongly of opinion that the bird is crossed very much to have obtained the size which he now holds. More than half-a-dozen of eminent Game breeders set him down to be a mongrel-bred one. There were birds there that obtained the first prize last year, and yesterday were not even looked at. The aforesaid birds that obtained the first prize on Thursday last, came away last year with the second; and we cannot conceive how the birds which obtained the prize last year, and not this year and were not looked upon by the Judges. The second-prize birds had yellow legs, and the two hens were pure white. Was not that enough to disqualify any coop from taking a prize? and this is principally how the game is carried through. Mr. Chas. Bedwell, jun., got Commended for a coop of Game. This gentleman showed two as good coops of Game as any there. Mr. James Hudson, Kingston, Lewes, sent first-class birds; Mr. Ridley, &c. There are complaints made year after year about the judging of poultry at this Show.

Ducks (Aylesbury).—Some very fine Ducks were exhibited by Mr. C. Bedwell, jun., who took the first prize.

Dorkings.—First, Mr. Blunden, Arundel, Sussex. Second, Mr. C. Bedwell, jun., Iford, near Lewes.

Spanish.—First, Mr. Jenner, Lewes. Second, Mr. Bull, Arundel, Sussex.

Game (any variety).—First, Mr. C. Davey, Lewes, Sussex. Second, Mr. Cammeroy, Goodwood. Commended, Mr. C. Bedwell, jun.

Cochin-China.—No competition.

Ducks (Aylesbury).—First, Mr. C. Bedwell, jun., Iford, near Lewes. Second, Mr. Blunden, Arundel, Sussex.

[Our correspondent gives some very severe remarks upon the Judges, but does not state their names. We have omitted these remarks, and will only add, that if they are just, we hope that the Committee will appoint more competent Judges next year. —Eds. C. G.]

TAKING CONDEMNED STOCKS.

How soon ought I to take my condemned stocks? Is it likely that the honey season will continue later this year? I do not think the weights increased last year after the middle of July. —A South Hants Subscriber.

[The time for taking condemned stocks of bees varies from the end of July to the end of September, according to the

locality. Some allowance must also be made for different seasons. Last year the honey harvest was early. This year it may probably be equally late.]

THE BEE SEASON AND ITS PROSPECTS IN 1860.

I can sympathise with your correspondent "B. & W.," on the untoward nature of the honey season. We have not had so unfavourable a time for about fifteen years, when we had at that time about twenty-six wet days in May, and the results were late swarming. Many stocks and swarms died from starvation, and, indeed, a beggarly account "of empty boxes" and hives. June, 1860, had more wet days and nights than can be reckoned in that month for the last sixty years, and the previous months of March and April being both cold and frosty, it is not to be wondered at that "B. & W." has suffered.

I will state my own case. I have removed to a new dwelling, but so exposed that the winds have been very annoying to the bees. My best stock did not throw off a swarm until the 18th of June, and for ten days or more could barely exist, from the wet and tempestuous state of the weather. We have had since the 30th of June fine weather, although the sun has been obscured a good deal.

From having three or four such splendid bee summers previous to *this*, Mr. Fox should not complain; as I have found from long experience, we have only one very good season in three, in an average of the last fifty years. Of course, in certain favoured localities exceptions are to be found, particularly where a country is not fully stocked, and where there is plenty of the white Dutch clover, heath, and other favourable pasture for bees. Nevertheless, the month of July, in 1856, 1857, 1858, and 1859, has been without precedent in heat and drought coming consecutively. July generally being every third year a wet and unsettled month.

Evidently Mr. Fox inhabits a most favoured locality, and no doubt is a most attentive bee-master, for I know of no such a honey harvest in Gloucestershire as he talks of. If Mr. Fox would condescend to read my numerous letters on the subject in the seventh, eighth, ninth, and tenth volumes of The Cottage Gardener, he will see at once that I have never lived in so favourable a district as his.

As to the rage for Ligurian bees, my advice is, keep them distinct, and in time they may become, with great care, a useful addition to our English apiaries; but the "Alp" bee will never surpass our old British black bee as long as England exists. My apiary a few years ago numbered twenty-six stocks.—H. W. Newman, *Hillside, Cheltenham.*

APIARIAN NOTES.—No. VIII.

MY APIARY.

(*Continued from page* 236.)

Since writing the first portion of this paper a salutary and most timely change has taken place in the weather, which has proved most exhilirating both to bees and to ourselves. It has, however, come too late for us to expect much in the way of honey deprivation; but I hope there is now a fair prospect of the stocks and new swarms being able to fill their hives sufficiently for standing the winter. But, to resume the subject of my last communication.

No. 8.—A straw hive of four, if not five, years old, which, so far as I know, has never swarmed. Two years following I have left it for swarming; but although in each case very crowded with bees, none having issued by the second week in June, and by that date, having had from my own hives and by purchase sufficient for all my requirements, a nadir in the old fashion was given to it, with the result only of a very small quantity of honey and some empty combs. At all times this hive has been very strong, and while placed over the nadir the adjoining hives were making rapid progress, so that I am convinced that no reliance is to be placed on nadiring as a means of obtaining honey.

This season I determined to force a swarm from the hive, and sacrifice the old stock. In the first week of May it showed every symptom of being about to swarm. Preferring a swarm issuing in the natural way to one obtained by driving, I waited a week or two. For several days following the bees would rush out in an excited manner, play about a particular tree, and return to the hive. No doubt on one of these occasions the old queen was lost. My patience being at length exhausted, I proceeded to drive the bees into an empty butt, and in three minutes nearly every one had ascended. Taking this to the usual stand, I returned to inspect the old combs; there was no brood of any age visible, except a few square inches of sealed drone brood, proving that there had been no fertile queen in the hive for some little time. While thus engaged a most beautiful young queen, almost as yellow as a Ligurian, made her appearance, evidently having taken the opportunity of escaping from her confinement during the commotion. There were only two royal cells to be seen, both of which were not long vacated; it is probable that an elder princess had already ascended with the expelled bees, but I quickly caught the one now scampering over the edges of the combs, and conveyed her to the others; she went in directly, and all remained quiet. In the evening the bees were knocked out, and transferred into a large nine-bar octagon box, which they nearly filled; and they must have weighed between 5 lbs. and 6 lbs. Although occasionally fed during the late unpropitious weather, they did not thrive, and their numbers became seriously diminished until another swarm was added as detailed in my last (No. 6).

I should state that the old hive was placed a few yards from its former stand; whether a royal cell or a small portion of brood escaped my observation I cannot say, but many bees found their way back to it, and have continued to work since. In time they will be driven out, and united to some other stock.

No. 9.—A flat wooden-topped straw hive (after Taylor, like No. 4) three years old. This, a fine stock, is filling an octagonal super thirteen inches by nine deep. Last season it gave me 40½ lbs. Has not swarmed since first peopled.

No. 10.—A common straw hive, treated similarly to No. 1, purchased of a cottager in 1858. Last season it filled a bell-glass of 15 lbs., and threw off a fine swarm. This year it commenced work in a super, but again swarmed on the 23rd of May. The swarm was discovered clustered on the branch of a cherry tree about six o'clock the following morning, having previously escaped observation. In hiving it the greater portion of the bees fell on my shoulder, but did not cluster there long; the queen having fortunately fallen into the butt with the lesser number. As soon as they were tolerably well settled the old hive was removed, and the swarm put in its place, thus securing a goodly number of bees for the new population of my adjuster box. The old stock very soon showed symptoms of swarming a second time; but the weather becoming unfavourable soon after, it has not done so.

Some writer has remarked that a depriving hive which once chooses to swarm in spite of the owner's precautions, is very likely to do so in succeeding years; and there may be some foundation for the assertion.

No. 11.—A common hive, similar to the foregoing and No. 1, from which, last season, I obtained, first, a glass octagonal box of 28 lbs.; and subsequently, a smaller one of 17 lbs.—or in the whole, 45 lbs. of pure comb, and this in a town garden surrounded by high trees and houses. The stock-hive weighed upwards of 35 lbs., and until March the bees were very numerous. About this period they became inactive, though pollen was occasionally carried in. I suspected that all was not right, but did not inspect them until the end of May, when, after driving out the bees, finding that there was no queen, nor sign of brood, I knocked out a fine swarm, and placed the stock over it. Again, as in the previous instance of No. 7, there was great slaughter, chiefly, I presume, of the old bees, which were few in number compared with the new population. This fighting is contrary to my usual experience, having seldom lost many by the union of two or more swarms, or by joining to established stocks.

When it is intended to unite a swarm to a stock-hive I think it is always advisable to drive out the bees from the latter, then in the evening knock out both clusters together on the ground; when on placing the stock above them the bees become mixed indiscriminately, and but little fighting is likely to occur.

No. 12.—A common straw skep of similar character. A purchased May swarm of last season, which afforded a glass box of 25 lbs., remaining most amply supplied for the winter. This May work was commenced rapidly in a super, but it threw off a splendid swarm on the 24th of that month. A cast also of very large size issued on the 10th of June, or *seventeen* days after—an unusually protracted interval.

No. 13.—Another common hive, also a swarm of last season. It was both a late and a small one, but managed to fill its domicile

pretty effectually. A super was put on in May and is nearly filled, more room being afforded them a few days since.

No. 14.—An observatory unicomb hive, at present remaining unstocked, owing to the unfavourable weather we have had. This is of a Gothic shape, 3 ft. 2 in. in height, by about 16 in. wide. It is furnished with six loose bars, which are also adapted to an oblong box into which the swarm is first placed, and allowed to establish itself until a considerable quantity of combs are made. They are then with great ease shifted to the unicomb, and at the close of the season may be returned to the box for winter quarters. For this last idea I am indebted to the "Devonshire Bee-Keeper," who first adopted the arrangement with his own observatory-hive.

A fine swarm which has been at work for some weeks has been recently purchased for this hive, and will soon be transferred to it for a short period.

No. 15.—A set of Stewarton boxes, a swarm of last season, from which several loose bars of comb were removed and the deficiencies again made good by the bees. This year a full-sized super is being filled, and further room has been required and afforded.

No. 16.—A deep, flat-top, straw hive, stocked late last season, on 22nd June. Although a super was early supplied this spring, a swarm issued on the 20th May, but returned. On the 29th, a fine swarm was safely secured, which was evidently a prime swarm. On June 1st, or *three* days after, a second issue took place. Query, in this case, was the queen lost on the occasion of the first departure of the bees? I think it is the only way in which the very short interval between the two swarms can be accounted for.

No. 17.—Large octagon, nine-bar box, peopled with two swarms this summer, weighing together 6 lbs. 4 ozs. of bees. Stocked first on May 30th; second batch of emigrants added on June 10th. Owing to the wretched weather, I was obliged to feed liberally; but feel well rewarded now in having so done. Since the welcome change, comb-building has progressed very rapidly, and this bids fair to be one of my primest colonies for future operations.

It will be seen from the foregoing remarks, that my apiary consists in a large proportion of straw hives, and many among these are simple cottage skeps, purchased from country bee-keepers. I believe I might safely engage to obtain, in a series of years, as much honey from a given number of these as could be taken in the same district from a similar number of any kind of hives or boxes. I do not prefer them to wooden hives, but use them chiefly on account of the ease with which a good depriving-hive can, in a few minutes, be adapted from already established swarms, or strong and vigorous stocks. I frequently, in May and June, visit the gardens of cottagers, and if I see a swarm of a few weeks old that has worked unusually well, purchase it—probably at an advance of a few shillings beyond what would be asked for one not yet established, obtain liberty to keep it where it stands until the autumn, cut a hole in the crown, fit on a top board, open commnications into a glass or super-box, tie all up secure, and leave it to take its chance. In this manner have I, with little or no trouble, been rewarded with supers containing 15 lbs., and 25 lbs. of honey, worth here from 15*d.* to 18*d.* per lb. The hive is removed in autumn to one of my own bee-gardens. Not only do I repeat the benefit of the plan in a mellifluent sense, but it also serves to enlighten the cottagers and causes them to think more about their bees than they have ever done, besides being often a source of great pleasure to me in observing the interest with which they watch the progress of comb-building and honey-storing in the glasses, occasionally remarking in the Devonshire style—"Lord a massy, us niver did'n zee zich a zight afore, iver anything like that now, purty little craeturs!"

The Stewarton hives as I have adapted them please me much, and are likely to form a large proportion in my apiary. Taylor's flat straw hives are also admirable. In making the cone-shaped apertures for communication I should avoid having any which would open over the central combs, believing that there is a good deal of sound sense in the remarks of "A Renfewshire Bee-keeper," in The Cottage Gardener, a few weeks since on that point, under the head of "Stewarton Hives." I was not previously aware of that peculiarity in the working of those hives—viz., that of the communication between the boxes being towards the side, instead of over the central combs. Long ago I adopted the principle in constructing loose adapters for bar-hives, but have rather lost sight of it of late, except in the case of the ad juster hive, which has been so worked.

I can endorse all that "B. & W." says in page 234 respecting the semi-starvation of stocks about the end of June, and the crammed condition of their population. While those of the "Devonshire Bee-keeper" were, in consequence of the wretched weather, suffering from the manipulations necessary for the carrying out of his queen-rearing projects, my own hives were greatly crowded with bees, and ready to take advantage of any change for the better. Although it is now too late to expect much of a honey harvest, yet I trust it is not altogether such a hopeless case as it appeared to be when "B. & W." wrote, and that with the recent change in the "skiey influences" another "change has come o'er the spirit of *his* dream."—S. B. Fox, *Exeter*.

Errata.—Page 236, 16th line from top 1st col., read instead of "removal of *bees*," "removal of *bars*."

MOISTURE IN WOODEN HIVES—CAPTURING QUEENS.

How am I to get rid of the dampness from condensation in a glass and a wooden hive? I find whenever the temperature gets down to between 50° and 60°, the dampness settles on the glass, and this in cold and winter weather is bad. If I put a piece of perforated zinc over a hole, the bees stop it up; besides which, it cools the hive very much, and I want to know a good and practicable plan. Would you also say how I am to get rid of the bees when searching after driving for the queen, to enable me to add a Ligurian queen? They come about one so much and sting where they can, and so lose their lives; besides which they become very irritable after it.

How does M. Hermann catch the queen and bees? I find when I want to do like this, that as fast as I put one in another flies out.—A Bee.

[All bee-glasses, when in use, should be well covered with some non-conducting material. Glazing the windows of hives with three, or better still, four panes of glass, with a space of about an eighth of an inch between each pane, will very much diminish the condensation of which you complain. When wooden hives become (as sometimes occurs) unfit for the habitation of bees, owing to internal moisture, the combs and bees should be shifted into a dry box. This can, of course, only be done in bar-hives; but with these it is a very simple operation. Whilst searching for a queen an efficient bee dress and thick woollen gloves will obviate a chance of a sting. We do not know how M. Hermann captures his bees, but he has, doubtless, had much practice, and possesses great skill in the manipulation of these insects.]

OUR LETTER BOX.

White Bantams (*J. Crossland, jun.*).—You give us some difficulty in answering your question. The points you describe are not only desirable in White Bantams, but they are those which in our opinion constitute excellence. There is no doubt the feathered birds have their admirers as well as the clean; and it is but fair to suppose that practised judges, such as those who act at the Crystal Palace and Sheffield, must see something very meritorious in those that have been successful at both places. There is one point you do not mention—Are your birds small? The body of a Bantam should be round and compact, but it should not be squat; and it must be borne in mind the carriage should always be saucy. There is a tendency, both in Black and White Bantams, to have large round bodies and loose feathers. Such will not win when in competition with smarter birds. We do not pretend to say yours have this fault; and we strongly advise you to show them again, bearing in mind the little hints we have given.

Combs of Spanish Hens (*W. R.*).—We do not know what you mean by the comb "lopping a little and then lopping again;" but we agree with Mr. Baily in saying that the comb should be "large, soft, smooth, hanging over, and concealing one side of the face." This answers your objection that the comb should not lop over much.

Various Apiarian Queries (*Erin*).—1. Starvation, produced by unfavourable weather, is the probable cause of your bees "creeping about the ground unable to fly." 2. In order to take an errant swarm from a gable wall, it will be necessary so to enlarge the opening as to expose the interior and admit of the combs being cut out one by one. If desired, these may be arranged in a bar-hive and carried to the apiary at nightfall. 3. In removing the bell-glass, you may cut through the part where the combs unite, and the bees will speedily lick up all the honey that runs out. 4. We have heard of instances in Australia and elsewhere in which a stock has thrown off an incredible number of swarms during one season; but we do not think any means you could adopt would produce this result in the United Kingdom. 5. Your queenless stock will probably hold together until next month, unless (as sometimes happens), it should fraternise with, or be robbed by, other bees. 6. If you mean to use the combs as guide-comb, they should be cut out, examined carefully for wax moth, and, having been separately enveloped in paper, put by in a dry place. If it be intended to shake a swarm into the hive, it had better be done at once.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	JULY 31—AUGUST 6, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
31	Tu	Bupleurum tenuissimum.	29.703—29.591	78—51	S.W.	—	24 af 4	48 7	36 2	13	6 5	213
1	W	Salicornia herbacea.	29.913—29.850	78—44	W.	—	26 4	46 7	rises	☺	6 1	214
2	Th	Serapias rubra.	30.051—29.993	76—42	S.W.	—	27 4	45 7	58 a 7	15	5 57	215
3	F	Crocus sativus.	29.992—29.865	77—57	S.W.	.16	29 4	43 7	11 8	16	5 52	216
4	S	Chironia pulchella.	29.925—29.816	78—43	S.W.	—	30 4	41 7	23 8	17	5 47	217
5	Sun	9 Sunday after Trinity.	30.015—29.995	78—41	S.W.	.01	32 4	40 7	35 8	18	5 41	218
6	M	Prince Alfred born, 1844.	30.077—29.937	70—57	S.W.	.01	33 4	38 7	48 8	19	5 34	219

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 74.8° and 51.7° respectively. The greatest heat, 92°, occurred on the 2nd, in 1856; and the lowest cold, 34°, on the 1st, in 1858. During the period 126 days were fine, and on 105 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Broccoli, finish planting them out, and also *Winter Greens*, as fast as ground can be obtained; for unless the autumn should prove very favourable, those planted after this time will not attain much size. *Cabbage*, the principal sowing for spring use to be made if not already done. *Capsicums*, keep them nailed to the walls or wooden fences. Thin, also, or stop the shoots frequently, as they require all the sun possible to produce good crops of fruit in our climate. *Carrots*, a few of the Horn to be sown to stand the winter. *Cucumbers*, peg down the shoots of the pickling sorts, to prevent them from being blown about by the wind. *Endive*, continue to plant on rich soil. *French Beans*, earth up, to protect them from high winds; and let all pods be kept constantly gathered, to prolong their productiveness. *Parsley*, thin out to six inches apart. The experience of last winter makes it advisable to plant a bed of it in some convenient place for protecting it during severe weather in winter. *Spinach*, select a piece of light, open ground, and give it a trenching or deep digging, with a good dressing of manure. The winter sorts to be sown in drills in beds, with wide alleys, so as to be able to gather the crop without treading the ground. *Shallots*, if left in the ground after the bulbs are mature they are apt to mildew and rot in wet weather; therefore, they should be pulled as soon as the tops begin to decay, and spread out in an airy place to dry before storing them away. *Tomatoes*, to be regularly attended to, keeping the shoots thin, and stopping them above the cluster of fruit; for if the plants are allowed to ramble and grow too freely there will be but a poor chance in an unfavourable season like this of ripening a good crop.

FLOWER GARDEN.

Climbers on walls, &c., to be attended to as they advance in growth, keeping the young shoots neatly laid in. Phloxes and other tall-growing herbaceous plants to be staked and tied out, without huddling the shoots together. All the Perpetual-blooming Roses that have flowered so freely this season to be assisted by a liberal watering with manure water from the stable or farmyard tank. Plant out Pink pipings, rooted cuttings of Heartsease. Layer Carnations and Picotees. Transplant into nursery-beds the seedling plants of Wallflowers, Sweet Williams, Canterbury Bells, &c.; to be afterwards planted in the places where they are intended to flower.

FRUIT GARDEN.

To keep Currants to a late period, select on a dry day some of the best bushes, and thin all the shoots from the fruit; drive a strong stake into the middle of the bush, and tie all the branches to it; then wrap a garden net around it. By such means a supply is frequently kept up to November. Shift Strawberries into their fruiting pots in a compost of good old loam, with a top dressing or mulching of decomposed cowdung. Take care that the pots are well drained. To be placed in a south aspect, and on boards or slates raised a few inches above the ground, to prevent the worms getting into them. Top or remove the rampant suckers of Raspberries. Continue to make new plantations of Strawberries, selecting the strongest plants, and attending to them until they get established.

STOVE.

The Ixoras, when done blooming, to be cut in, and started gently, to make a fresh growth. Orchids suspended in baskets or blocks to be liberally supplied with water, and to have frequent slight syringings overhead.

GREENHOUSE AND CONSERVATORY.

Continue to cut down the Pelargoniums done blooming when the wood is ripe. Repot those plants previously headed down as soon as they begin to break. Pot off the cuttings as soon as the roots are formed. Continue to pot Cinerarias when the seedlings are large enough to handle, or as strong suckers can be obtained, placing them in the close part of a cold frame until they get established in their pots. The pot Roses to have all the faded blooms cut constantly away; and those intended for winter blooming to be examined, and if they require shifting, some of the old balls should be loosened, and the head slightly reduced. Keep a sharp look out for mildew among the Heaths, particularly those kinds liable to it and in close situations. Keep the young plants growing vigorously, and do not spare the knife where they are disposed to grow loosely.

PITS AND FRAMES.

To obtain high flavour in Melons it is necessary to keep up some slight amount of bottom heat and the leaves in a healthy state, and by accustoming them to the open air by free ventilation night and day in favourable weather during the ripening process. W. Keane.

THE BEDDING SYSTEM CONSIDERED UNDER DIFFICULTIES.

Those who neglect the spring flowers—the flowers of our childhood—and trust to the bedding-out system alone for the strength of their decoration will have found, by the experience of the dog-days of 1860, but more especially by the first quarter of them, that that strength was of less duration than the flush of the mixed herbaceous borders used to be, and that the rest of the season, fore and aft, was much less than the dropping, here and there, of the "early" and "late" flowers of our forefathers. The "effect" for two months, if you wish they may get it, can hardly make amends for an equal period of doubts and uncertainties as to effect being, or being not produced, and the certainty of a dearth for eight months out of the twelve, save and except what may be accomplished by make-believes during that period. On the other hand, those who take, and, this spring took, the opportunity of filling their beds and borders to the full extent of our available means in spring flowers, have

proved a new rule in flower gardening, without attempting it.

There is a capital rule and a good lesson in flower gardening proved this spring by the experience of many, without their wish or intention. The spring flowers were so late in coming, and the weather was so cold, that bedding plants either lost their spring movements altogether, from being exposed as much as in former years, or were forced to make the spring growth by being kept close longer than usual; and gardeners well know that forced growth in the spring, made from stinted roots in old exhausted soil during a long period, is not the right kind of growth to form the basement for the build and growth of a summer season. And all this has been just proved by the force of circumstances, by the lateness of the spring, and the coldness of the early summer months. Those who have been thus compelled to keep their bedders longer on hand, in order to run out the last of the spring flowers before removing them to make room for the bedders, have had their plants—that is, their bedders—on the starving system much longer than usual, or on the false forcing mode, which never fails to tell unfavourably at the moment you expected success. Either from too much spring exposure, or from too much coddling over a longer period than is usual, bedding plants were never in a worse condition to turn out against adverse circumstances than they have been this spring in nine places out of ten. But does every tenth place provide accommodation for a different order of things, for the right gardening of bedding plants in the spring—that right being founded on the best practice of one generation at least? This style of flower gardening being yet within the period alloted to a generation of gardeners.

If you believe gardeners, or if you even believe me, there is not one place in a thousand where there is the suitable accommodations for the ordinary spring work of that place, and much less so for any extraordinary turn which may happen from the turn of the season, or from any other circumstance. All of a sudden, a man or woman who has to do the bedders for the time being is thrown on his own head resources, or on her mental perception—I make this distinction, for a man flies to his head to get him out of a fix—the consequence of a sudden turn in the weather, as in this instance; and if his head is soft, like some heads which some of us would punch if we could, his plants will be as those in one of the nine places aforesaid; but let a woman suppose herself, or her plants, to be in difficulties, and her whole heart is in her way of fixing them how she would. Then, if a man happens to get into a fix about bedding plants, he should never attempt to get out of it without first asking advice in the right quarter. That was just my own lot and resolve this very spring.

All through the spring every day was alike, with the difference that each succeeding day was colder than the preceding one. What was to be done? A new Experimental was coming into form and fashion on the usual model under my nose. "New brooms sweep clean," if they do not pick up broken thread and the like, and to be broomed out or picked up by "mother dear" was more than I could brae or brook; so I took council, followed the advice, and did the thing as clean as a pincushion. We hardly lost a day in flowers this spring at the Experimental. There was no spring, so to speak; and I was advised to make a spring—not to "loup o'er a linn," however, which means a spring over a precipice with a waterfall, but to make spring weather. That weather was instantly ordered at the weather-office we had, and we did as I say.

Towards the end of March our spring began in earnest. All the bedding-plant frames were shut down and kept warm by glazed flue-pipes, with flower-pot saucers full of water over them for "evaporating-pans." The new greenhouse and the "old laundry" behind it, were also both heated by hot-water pipes; and they were set to run up the weather to 60° at noon, and more or less, earlier and later in the day, as each day seemed to require from the amount of sun heat and light which it promised to furnish and perform. Every plant was shaken out absolutely and entirely from all the soil about the roots, and was placed in fresh soil and a good-sized pot under that spring weather so made and managed. The whole stock in the Experimental, except the Verbenas, was spring-reared and set in motion, also continued on to the second week in May. Then, the spring flowers being still as good as they had been, it was determined to give them another week or ten days longer than usual, and in that time to air and cool down the bedders to the point at which it is safe to trust them in their summer quarters. By that time every plant was firmly established at the roots with good, fresh, loose balls, and the balls had no need of being shaken or much broken for the planting. From that day to this those plants have not lost a single day from check or change; and there was more bloom on them in June than could be seen in nine places out of ten in July. Indeed, the gentleman from New York who, I said, bought up all my "Good Gracious" things at the Wellington Road Nursery, and the Metalicas, and all the old and new world of things from Mr. Low, of Clapton, and Mr. Frenchman Chantin, of Paris, insisted upon it that there were more flowers then in the Experimental, according to its size, than in any other he visited here and on the Continent. But he was not more than fifty miles out of London when he was here. The next day he went to Shrubland Park and then home to New York; and I had a letter from Mr. Taylor, at Shrubland Park, to explain the cause why he could not spare more time with the gentleman who paid him the compliment of going so far out of his way to see perhaps the first place of its kind in Europe to an American eye. Well, our joint apology must go in this number of The Cottage Gardener to New York, where all the numbers are, seemingly, just as well known as they are in London.

The planting out this season in most parts of England, was more safe for the plants than that of any since the beginning of this system, owing to continuous rains and the absence of sun. But the want of stimulus to fresh growth was just in the same proportion from the same causes; and when plants in their winter condition, as one may say, had to be subjected to these causes without first passing through the spring movement, their condition must have been sad indeed, and their tale to this day is only some degree more or less aggravated of that condition.

After being in it so long, or from the very first Verbena that was ever bedded, I cannot determine or say if it be their natural way, or from having been kept more open than other plants, and consequently more exposed to the inclemency of spring weather; but certain it is that Verbenas were the most behind this season everywhere about London. They were not worse or better than elsewhere at the Experimental; but they did not receive the strength and stimulus of the artificial spring weather which all but themselves enjoyed, as just stated, and which all have so fairly paid with compound interest. I never saw the variegated Geraniums so good as they have been there in June and July—the *Golden Chains* among the rest. We often bring up Mr. Fish's words—"going along side of the ribbon-border," he said, and the saying was just like him, that "the variegated pink or cup-leaf Ivy-leaved Geranium did not mind how near the pump it stood or was planted." And we could add that if it rained on from May to October this Geranium would look all the better; and the rains we had, have proved what the said gentleman from New York told me—namely, that none of our variegated Geraniums do any good out of doors at New York: it is too hot and too dry for them there, and it is so on chalk and thin soils in England with them occasionally. But this has been the season for all variegated and minimum Geraniums which went out in good working order; and cuttings of the smallest minimum, to give a

double meaning, of *Dandy*, and only three-quarters of an inch in length, have stood out and rooted full in the open sun already, and are just planted out in the same row with *Verbena melindris* and *Lobelia speciosa* on the ribbon-border; and *Dandy* is destined and detained to supply the place of the variegated Alyssum on that row, according to the recommendation of Mr. Scott, of the Merriott Nurseries, near Yeovil. Mr. Kinghorn's *Christine* and my *Victoria Rose* are different under a cloudy and drooping sky, and both hold up against the rain better than the Scarlets.

By a simple trick upon travellers, we have proved that all the little blue Lobelias do not all come true from all seeds, nor the seed to name, from all the best seed-shops in this world, nor from a good many of them—not even *speciosa*, the best of them; and there is no saying how many kinds of *Lobelia ramosoides* are in this world, or in any other, or in London either. But by the stars and garters, if one were to tell the truth, and all the truth, and nothing but the truth, as witnesses do in Scotland, would the weather not clear up at last, and prove which kinds stood the tests of purity and truth? The *Ignescens* breed of border Geraniums did better in that kind of weather than either the *Uniques* or the *Diadematums*. Begonias and Farfugiums do out equally well; but *Gazania splendens* has been the prime goer the whole season. Wintered, out of pots, on a west border under glass, and as cold as coloured charity the whole winter, it began to open flowers with me in April, and though often half drowned since it was planted out, it has not flinched; but the best place for it, under such weather, is up as an edging to hang down from a high pedestal vase, or any form of rustic vase or basket, and for such high decoration I must needs eat my recent and reasonable meaning, when I said it was daft to think of keeping the old plants of this Gazania over the winter. But we must keep some of the old plants till they are a yard long, if they come so much, just to hang down so long over one's vases and do so well; but how to do it is still to be tried. D. Beaton.

THE SIR HARRY STRAWBERRY.

I have sent a few fruit of *Sir Harry* Strawberry as I promised; but they are not so large as usual, from the first blooms going blind with the constant wet; neither are they ripe enough to judge the flavour, as they should be almost black; but ripe Strawberries are not worth much after a 150-mile journey. I also enclose a few leaves and a sprig of unripe fruit gathered at random from more than a dozen on the same plant. I may add they have been planted two years, but the plants were very small when planted, so they did not bear last season.

I have a larger crop on these than any other of about a dozen sorts, for although I never saw a firmer blossom on *Keens'*, and *British Queens* these did not set, as we had but two fine days for six weeks, and the thermometer down below 40° several nights, and at freezing-point on the night of the fourth of July.

The fruit of *Sir Harry* gathered from pots through May would average those sent for size, and many much larger.—J. T., *Tedderley Gardens*.

[The specimens sent are very fine.—Eds. C. G.]

GENERAL REMARKS ON IN-DOOR VINES.

Within the whole range of gardening, and amidst the mighty progress that has taken place during the last twenty years, nothing has exceeded the advance in Vine culture. And to what may this mainly be attributed? To the gardening press, doubtless. It has brought men and opinions in contact to such a degree, that, to use a gardening phrase, every principle or practice concerning Vines has been thoroughly ventilated. The Cottage Gardener has been anything but an idle spectator during the struggle of opinions; and Messrs. Beaton, Fish, and Appleby have each contributed much towards a consolidation of the floating opinions held by various practitioners. I also claim a share in the matter; and the questions of soil and the art of border-making have, above all, long been with me a favourite subject. I feel now desirous to make a few remarks on the management of the wood and foliage during the growing period chiefly. The stopping of Vines is a practice well known to be absolutely necessary; and of the Vine it may be affirmed that no fruiting tree we possess will bear, and indeed demand, so much stopping and pruning. But stopping is sometimes carried to improper extremes.

I may here remark that stopping the growing spray of fruiting Vines is not necessarily performed in the same way as the stopping of young or recently planted Vines. There exists some difference in practice as to fruiting Vines. One party will stop at one joint beyond the bunch; a second will frequently stop at the bunch; and a third urges that there is nothing like having plenty of good foliage beyond the fruit. Nothing serious may be found in either of these practices. That a fine leaf or two beyond the bunch, with a due attention to keeping down the superfluous laterals, is of benefit, both as to the welfare of the bunch and the future stamina of the tree, there can be no doubt; but here the question of light assumes influence, and gives indeed, in a great measure, a bias to the whole affair. We all know that if Vines are left undressed, ordinary vineries would soon be all confusion. We have to stop rather short in order to economise space. Like Melons, the free exposure to light in our climate of the principal leaves is the prime object. The production of subsequent laterals, &c., is simply necessary to keep the sap in play; but they do little comparatively in preparing that food by which the vinous treasures must be made up. As connected with stopping, we have not only to call existing roots or fibres to our aid in this process, but we have to create new fibres and farther extension of root action in order to meet future demands. This I will apply more particularly to young Vines for a season or two after planting. In newly-made borders our first object should be to obtain a good volume of roots in the borders. There are two good reasons why this is desirable. In the first place, we want to impart a good store of energies to the young plant, so as to be fully prepared for the labour it will have to perform; and secondly, as a sort of defence against too much moisture in the border, for abundance of roots will prove antagonistic to the over-retention of moisture. Now by very prim and close stopping this cannot be accomplished; for since the volume of roots of any given tree in health always bears a proportion to the head of the tree and rapidity or freedom of its growth, to obtain plenty of roots much liberty must be allowed the branches for a while. The time will arrive when close stopping will be necessitated; and until then we may pursue a different policy. The stopping of young Vines, therefore, must be quite of a progressive character—a few at a time. For instance: Supposing Vines planted this spring, under proper circumstances they should be halfway up the rafters by the middle of June, perhaps higher still. My practice would be to pinch at that length the least possible amount of the leader, and leave what laterals they possess unmolested until a new growth commences at the terminal point. By this time the wood would be getting firm, and some enlargement and extra power thrown back on those axillary shoots or the foliage at their base, on which the strength or fructiferous character of the future spurs will depend.

I would next suffer a terminal point to ramble, as also the laterals, "stopping" each alternately, the former at every four or five joints, the latter at every second or third. All late growths making any effort after the end of September I would stop or pinch altogether, in order to secure a thorough concentration in the energies—or, in other words, the consolidation or ripening of the main stem. The second year rather less liberty may be allowed them; for by this time the border should be pretty well filled with fibres—at least as far as the roots have extended.

The renovation of Vines that have been planted some years, and the roots of which have become stagnated, is a matter for much consideration. A most sensible paper appeared some short time since by Mr. Fish bearing on this subject, in which he very ably explains the origination and preservation of surface roots, in aid of those become torpid below. He shows that surface roots, a new series, may be decoyed or created by fermenting materials; but that if they are, it requires a little management and caution to preserve them from extreme fluctuations. These arguments I admit; but still the thing is to be accomplished, and has been repeatedly. But surface fibres may be induced without the aid of fermenting materials. I well know that in many cases it would be a wiser course to make a new border and plant anew. But then the Grapes! "Whilst the grass grows the horse starves:" and what are three-fourths of the matters of life but mere expe-

dients? There are two points which must occupy the foreground of this part of our subject:—the first, drainage; the second, surface matters. If any really good gardener were to change situations, and take to a strange establishment where there were vineries of this kind, and the employer would not consent to destroy them, what in all probability would he do? He would doubtless first ascertain the character of the locality as to the soil, &c. He would inquire of those worth inquiring of as to prevailing impressions of the character of the soil and subsoil, and would make deep trial-holes to observe the amount of porosity with other matters: on such he would have to found his plans. Then, it is not unlikely that he might have to contend with what had been considered "a border," made at much expense, but which had performed its business much after the manner of a garden-pot without a hole in the bottom. Thorough drainage, of course, must take the lead; but then, after we have taken the water away, we have the old and often putty-feeling mass of worn soil, humus, and locked-up sediment to deal with.

We thus come to a case of rather frequent occurrence—the endeavouring to hire or create a new series of surface fibres. In such cases I would here advise unloading the surface of the border of all dormant and exhausted soil; preserving, of course, what surface-roots there might be before applying the new dressing. The use of fermenting material is certainly of much service in the first application, for it will hurry on the desired end. Such, with a steady temperature of about 70°, should remain over the roots until the end of May; and for a fortnight before removal should be allowed to sink to 60°, in order gradually to reconcile the Vines to such removal. About six inches of a compost should be applied previous to the application of the fermenting material; and the best thing I have found for this purpose is a mixture of dung and tree leaves which had been half spent as linings. This will slightly ferment again, and the Vines will ascend freely into such medium. Some fine lime rubbish might be mixed with the compost, and care should be taken when the fermenting material is removed not to disturb the compost.

Now, be it remembered there is nothing new or uncommon in this proceeding. Our best cultivators seem to increase in their estimation of surface dressings for all tender fruit trees. I have several cases here of the complete renovation of old favourites too good to destroy. I have a *Morello* Cherry wall, which a dozen years ago was under condemnation. I, however, thought that I would try to make them young again; and have since almost annually surfaced the roots with three inches of the dung and leaves. This material in decomposition becomes but one inch, and now the surface material is not more than six inches, and is filled with fibres. The trees are quite renewed, and bear famously; and the old stems, which used to look hide-bound, look sleek as young trees. R. Errington.

THINNING TREES IN AN ORCHARD-HOUSE. TIFFANY-HOUSE—LATE-PLANTED VINES.

This spring I stocked a span-roofed orchard-house sixty feet by fourteen feet with many more trees than I find at all convenient, except twenty-five feet length devoted to Vines and a few Figs. I have the trees arranged in three rows on either side the central path, two feet from stem to stem. They are all pyramids or single-stemmed trees, and are all planted in the border. I find that in moving among them to syringe and pinch I sometimes knock off shoots, and have therefore resolved to have only two rows in the autumn, when I lift them. I shall thus have some thirty-four trees to dispose of, all Plums and Cherries; and I have besides some sixty Pear pyramids and bushes in the open ground planted this spring, which I fear will not ripen their fruit well in this climate (Settle, Yorkshire) without some artificial means. Now, under these circumstances it has occurred to me that a lean-to tiffany orchard-house might answer the purpose effectually, and at very little expense. I took the idea from drawings and comments in your number 600 for March 27th. Do you think this would answer? It seems to me a better and cheaper plan than surrounding the trees each with a nightcap of its own. We are 500 feet above the sea level, and, therefore, our summer temperature is not as high as one could wish. I have a south wall nine feet high with a good twelve-feet border thirty yards long, and sloping up to the west. The situation is extremely well sheltered from every wind. The sun is on the wall from eight o'clock to four. This would, it seems to me, be an excellent place for erecting a tiffany lean-to, if it would answer the purpose.

Another plan suggests itself—namely, to pot the superfluous trees and put them out of the house in June. This would be very laborious, and would still leave my out-door Pear trees without protection.

I have determined to adopt Mr. Rivers's hints on the treatment of Vines given in the seventh edition of "The Orchard House." I have planted them permanently thirty-inches apart in two rows, and mean to train them to tall rods reaching the rafters on the spur system. On planting them in March I cut them down to eight buds, but many of them have only sent out one shoot, most two, and some three. This has much puzzled me. However, I have pinched back the weaker shoots to six inches, or less, and allowed the strongest shoots to go on unmolested (no matter from what part of the old stem). Still the longest shoot is not above eighteen inches long, the joints very short, one inch, or one inch and a half. My object is to let the longest shoot furnish the rod from which the spurs are to produce fruit ultimately. I suppose I must expect no fruit next year; at any rate from these Vines with but one shoot. Should I now cut away the old wood above the young shoot? The sorts are twenty-five *Black Hamburghs* and ten *Royal Muscadines*. I account for their doing so badly by their not having been planted till the end of March, and having long, straggling roots.—An Ignoramus.

[The plan you suggest for thinning the borders of your orchard-house of the trees, which are certainly too close together, is a good one; and you cannot do better with those you remove than plant them out in such a position where they can be covered with a tiffany-house. We have seen several of these tiffany-houses and like them; they enclose a great deal of heat, and do not prevent evaporation. The cost of them is a mere trifle, and the experiment is well worth a trial. Your Vines are doing as well as you could expect, after being planted so late. Keep the soil well stirred about them, and mulch the surface with rotten dung. Let the leading shoot grow on to the full extent it will go, and cut down all the old wood above the point from which it proceeds. Pinch all lateral shoots produced below it. If there is much old wood below the leading shoot you may have a bunch of Grapes next year.]

BUDDING RHODODENDRONS—CROSS BREEDING HEATHS.

Will you allow me in this "horrid weather" to indulge in a few growls just by way of relief? As to grumbling about the weather, I do not see anything gained by that; first, because we cannot alter it; and next, because after all we are but poor judges as to what weather would be best, all things considered. For instance: What kind of pasture, or meadow, would our croakers about rain have given us if they had the command of the weather-office? Where would have been our prospect of an abundant harvest which we see now in the strong, though not over-luxuriant, grass corn? Ah! but reply these croakers, "We shall never be able to save it." Well, the worst wish I wish them is, that they may be disappointed, though such untrusting curmudgeons deserve no better than they expect.

> "Some murmur when their sky is clear,
> And wholly bright to view,
> If one small speck of dark appear
> In their great heaven of blue."

My grumbling, however, is of a different kind. I am grumbling about The Cottage Gardener, though, very probably, you may consider "my censure praise." Nevertheless, you have been teaching us all sorts of things to propagate by seed, by cuttings, and by grafting; but all the time coaxing us into seed-shops and nurseries, and describing all your beauties in such vivid colours, that we, poor inhabitants of ultima thule, have been led to try to be as good as our neighbours, and are tempted to stay at home in the country in summer; the season which all fashionables know is only to be enjoyed "in town." Well, again, you have brought me to work with my own hands; and having a large collection of Rhododendrons, all with fine names and fine flowers, I was led by your contributor, Mr. Appleby, to try grafting, but not having any plants in pots since last autumn as directed, I could not follow that plan strictly; so I resolved to try my hand to procure some duplicates, even under adverse circumstances, and to work I set, having now become a working man, to make the grafting-wax as directed. My sealing-wax was the best red, and everything else, I think, all right. Alas! alas!

when all was put together, strictly, I think, observing directions as to the manner, &c., down went the sealing-wax to the bottom, and no coaxing could get it to mix with the mass. Now, where was my error, or was the error mine? Was it that I used too good sealing-wax? for I do not know how the shell-lac composing it can mix with the grease. However, if the fault was mine, please to tell me; and if it was yours, in the receipt, please to correct it, as you know great authorities do either great good or great harm. This is a grumble for your contributor.

Talking of grafting Rhododendrons, I have done without the wax and without having the stocks in-doors; and if any of your readers feel an interest in the subject, here is what I have done successfully too, I think. From the 10th of June to the 25th, I pricked out some strong seedling plants for stocks. They had been planted out in a young plantation for underwood. The scions which I took from some of the best sorts, were the shoots of last year which had just done flowering and had not yet thrown out the shoot but still having a strong bud. These I grafted saddle-ways, tied in with bast, grafting as low down as possible, and then having drawn the mould (bog peat), just above the graft, covered each plant with a large pot, the hole of which had been slightly enlarged. The shoots have all elongated in the scions, and in some cases the leaves of the new shoot have expanded. The pots have in some cases been permanently removed, though in most they remain, the holes having been still more enlarged. It is probable this method may not give the new wood sufficient time to ripen well before winter, and it may be nothing new to others, though I never heard of it, as I am entirely a self-taught experimentalist.

Now, one growl more will satisfy me. It is directed at the cross-breeders, and at Mr. Beaton, the giant in that line; and like most grumbling it may only exhibit the grumbler's ignorance.

What is the reason that while we have hundreds of hardy cross-bred Rhododendrons, we have few, if any, hardy hybrid Ericas? Why do not these gentlemen increase our hardy varieties by crossing our native Heath with the Cape varieties? Is there any practical difficulty which is not to be overcome? It is a great pity if there be, for there are few more beautiful plants, and some of the Cape sorts are beautiful in the open ground, and in the rain too this very day. I will growl on this subject unless, or until, I get a satisfactory reason why I should not grumble about it.

It has been raining ever since I began this, and the eclipse has been going on behind the clouds; but as one's temper is not dependent on the clouds or rain, I feel myself in sufficiently good humour to say to "Rustic Robin," that I shall be happy to send him a head of seed of *Anemone Pulsatilla*, if my transmitting it to your office will insure his getting it safely. I know of no other mode of sending it.—D. C. M.

[We will leave Messrs. Appleby and Beaton to answer these "grumbles," which we have no doubt they will; but in the meantime we will give the recipe for grafting-wax, which we have found produces a satisfactory compound:—Two ozs. pitch, 2 ozs. resin, 1 oz. beeswax, ½ oz. hog's lard, ½ oz. turpentine. Melt and mix them thoroughly. While fluid spread it upon thin brown paper, and this, when cold, is to be cut into slips three-quarters of an inch wide. These when breathed upon become limp and adhere to the scion and stock when wound round them. When sealing-wax is used in making grafting-wax, we find it best to melt the sealing-wax first, and to add the other ingredients afterwards.—Eds. C. G.]

THE SCIENCE OF GARDENING.

(*Continued from page* 245.)

To the opinion of Mr. Knight as to the non-interbreeding of what are considered distinct genera and species we do not subscribe; and we are sustained in thus differing from his opinion not only by Linnæus, but by one of the most practised of modern hybridists, the late Dr. Herbert. After stating many facts, he thus concludes:—"Can we, in the face of these phenomena, assert that no vegetable since the period before the sun and moon gave it light, no bird or fish since the Almighty called them forth from the salt mud, no creature of the earth since it was evoked from the dust, can have departed from its precise original structure and appearance? Let us be more humble in our assumptions of scientific knowledge, less bigoted and self-sufficient in our examination of revealed truth, and let us give glory to the infinite and unfathomable power and wisdom of God. I call it self-sufficient to hold that ancient and obscure words can have no possible meaning but that which we have been in the habit of attributing to them inconsiderately. It may be unacceptable to the botanist, who has been accustomed to labour in his closet over dry specimens, and thinks he can lay down precise rules for the separation of genera, and looks with complacency upon the scheme he has worked out, to find that the humblest gardener may be able to refute him, and to force him to reconsider the arrangement he has made; but the fact is so. The cultivator has the test of truth within his scope: and, far from being an evil, I look upon it as a great advantage, because it will lead the industrious and intelligent gardener to take a higher view of the objects under his care, and to feel his own connection with science; and it will force the scientific to rely less on their own dictation, and to feel that they must be governed by natural facts, and not by their own preference."

Although we entertain a strong opinion that many botanically widely-divided genera and species can interbreed and have interbred, producing new forms which in their turn have been classified as new genera and new species, yet there is no doubt, as observed by Mr. Fish, that cross-breeding is most easily effected between distinct varieties of the same species. Such crosses are also the most valuable, because many of them, if kept distinct, will reproduce themselves true from seed—such, for instance, as our garden varieties of the Cabbage. They will also cross with other varieties, which also will be reproductive. But this reproduction can be carried only to a certain point, that point being determined by no known rules, but depending upon something constitutional in the nature of that tribe of plants. Thus we have found that Calceolarias long crossed would not produce seed, though apparently possessing perfect stamens and pistils; neither would they do so when fecundated by another variety as high bred as themselves, though seeds would be produced when fecundated with the pollen from some of the coarser, more original, types of the species; but, of course, in that case, the progeny were defective in form and beauty. Even when the seed of the variety continues fertile, and they are not averse from joining issue with kindred varieties, still a deterioration of quality will in time ensue, similar to what takes when the breeding in-and-in system among animals is adopted. When, therefore, a superior flower—root, vegetable, fruit, or grain—is obtained, care should be taken not only to keep the variety true, but experiments should be made to cross it with some other dissimilar, and yet desirable variety, in the hope of obtaining a fresh production which may take the place of both its parents when they are beginning to wear out.

Many experiments would tend to confirm the idea that manner and style of growth will be chiefly regulated by the characteristics that belong to the plant that possesses the pistil, while the flower and other parts of fructification will be influenced by the plant from whence the pollen of the stamens was taken. Thus, when the beautiful *Fuchsia fulgens* was introduced by the house of Lee, great hopes were entertained of what could be done by hybridising it with such old varieties as *globosa*. But as most of the attempts were made by selecting *fulgens* as the mother plant, the progeny were distinguished by large leaves and small flowers; whilst what was desirable was the large flowers of *fulgens*, and the small, compact foliage of *globosa*. Again, for example: our earliest Peas—such as the *Albert* and the *Frame*—are hardy and stubby in their growth; but then no one will use them after the more tender, later, but large and sweet Peas of the various *Marrowfats* appear. To cross the *Marrow* with the early Pea would have the tendency to give a variety possessing the small flavourless fruit of the latter with the tender and late habits of the former. By making the early Pea the mother plant, and the large high-flavoured *Marrow* the father, there is a likelihood of obtaining early Peas, hardy in their nature, large in size, and good in flavour.

We will conclude this branch of our subject with a few practical directions, furnished by Mr. Beaton, for conducting cross-breeding in the Gladioli and Geranium genera. "There is only one style in the centre of a Gladiolus, and that divides into three parts, or stigmas, at the top, and is the part to dust the pollen on. When the parts are ready for the pollen, these stigmas open into two halves, or are dilated, as botanists say, and the edges of these little openings are the real stigmas. The anthers which bear the pollen are always in threes in this flower; each flower invariably having only three stamens, which hold up the anthers. When the pollen is ripe, the anthers burst from the top to the bottom, and there is a furrow down the centre of each opening, so that the anthers are each in two parts. The easiest way of

applying this pollen to the stigma is to cut off the flower whose pollen you are to use, then with a penknife cut off first the petals down as far as they are split, then you will only have the tube of the flower to which the bottoms of the stamens are attached; then, with the point of the knife, single out one of the stamens with a ripe anther, keeping hold of it between the knife and your thumb, and in that position apply the anther backwards and forwards on the stigma, when you will see the dusty pollen adhering each time to the stigmas, and then the work is done. It is always a good plan, however, to apply the pollen twice—say in the morning and afternoon; or, after the interval of a day or two, with some flowers whose stigmas remain fresh for several days. Where a cross is difficult to be obtained, it is a good plan to use pollen from two or three flowers, and from as many plants, if they are at hand; but the pollen plants must always be of the same kind."

In cross-breeding Geraniums, if you look at one of their flowers just opening, you will see the pistil all in one; a few hours after that it begins to divide at the point into five divisions; and finally, each division rolls back so as nearly to embrace the style: in that state it is fit to receive the pollen for one, two, or three days, according to the state of the weather. When the pollen parent is scarce, take only one stamen, and dust all over the five turned parts their whole length, and the work is finished. When we have plenty of flowers we pull one off for the pollen, cut away the petals, and apply all the anthers at once. Thus about eight or ten flowers can be crossed in one minute.—J.

(*To be continued.*)

TECOMA VELUTINA, BIGNONIA TWEEDIANA, AND TACSONIA IGNEA.

I observed in a recent number of The Cottage Gardener a statement that the first-named plant, which is described as very beautiful, has never bloomed in England. I beg, however, to say, that it flowered in my conservatory last summer, and is assuredly a striking, showy thing. The blossoms were produced in a somewhat large panicle of a pyramidal form, their colour being deep rich golden yellow. I received my plant from the Horticultural Society, with another species, which I have lost. *T. velutina* was grown, when young, in a hot pit, but afterwards placed in the stand of a cool greenhouse, and subsequently on the bed of the conservatory, where the flowers were produced. It certainly received no particular care, and the foliage presented a somewhat *starved* appearance, which may account for its blooming. At present its state is very unsatisfactory, as the temperature of the conservatory was too low during the past severe winter, and the plant died down nearly to the ground. It is now shooting freely, but will not bloom this summer.

When speaking of this order, I cannot help expressing my surprise that the gay *Bignonia Tweediana* is not more generally grown as a conservatory climber, as its brilliant golden flowers are very attractive when the plant has attained a blooming age.

Has any one flowered *Tacsonia ignea*—a species highly praised in print, but seldom heard of in a blooming condition? I had for four or five years a very vigorous plant in my conservatory, which never produced a single flower. Is the species known? and does it require, like the famed Bougainvillea, heat at its roots to bring it to a blooming state?—A Devonian.

EARLY POTATOES.

Young gardeners are deeply indebted to you for your kindness in inviting them to make known their experiments, wants, disappointments, anxieties, and also their successes; though these last are somewhat like angels' visitations, "few and very far between. But there is one gigantic drawback to their acceptance of the invitation. Young men are keenly sensitive of ridicule from their elders and superiors; and many a good idea, many a fresh, bright thought, I believe, is lost from them by their thinking that what they are writing is well enough known, and that it will be read with a smile of pity at their ignorance by older and cleverer people.

I am rather "thinskinned" in this respect myself, notwithstanding I am writing that which will militate against the opinion of an acknowledged authority, the Rev. E. F. Manby, of early-Potato-growing celebrity.

Early Potatoes, in the open ground, are with me (not having "acres of glass, or regiments of gardeners"), a crop of much importance. I have devoted some little attention to their culture, and have procured the best kinds,—local and otherwise. The Rev. E. F. Manby's *Lemon Kidneys*, direct from Morecombe, amongst the number.

This is their third season, and the result is, they are fully ten days later than the *Ashleaf*. In the Rev. Mr. Manby's pamphlet "On the Cultivation of Early Potatoes," page 5, he says, "They (*Ashleafs*), have been tried here, and are found by no means equal to the *Lemon Kidney*, which is equal in production to the *Ashleaf*, earlier in forwardness, and far superior in flavour and quality." With the exception of produce, the case is decidedly reversed. Whether the *Ashleaf* of our neighbourhood is a peculiar kind, I know not, but it certainly is the very *earliest good* Potato grown; but, I will give you some figures—those facts, which are indisputably stubborn things, to prove my opinion.

I take this spring crop as an example. *Ashleafs*, planted April 13th, first getting, June 17th; not good certainly, but we must consider the almost sunless spring and great quantity of rain. June 22nd, good, and ready to get every day. *Lemon Kidneys*, planted April 10th, first getting, June 17th. Oh! horrid, spit them out, something in appearance like a partially melted wax candle. Of course, these are worse from the same cause as the others. July 2nd and 3rd, moderately good, but by no means first-rate. July 12th and onward there are few to equal them. For produce they are decidedly superior to the *Ashleaf*, and a most valuable acquisition; but, ten days in forwardness is, to one with a family to cater for, a great consideration. My remarks are called forth by a desire to vindicate the claims of the *Ashleaf* for earliness; and I should like to induce gardeners generally to give us a few notes on the cultivation of early Potatoes.

Oldbury Kidneys are great local favourites, but I never can get them as early as *Ashleafs*. What this new *Handsworth Kidney* is, I cannot say, having not grown them yet.

The seed was all sprouted in flat baskets in the same place, and planted on the same south border, and the result is as I have described; not only in this season, but from different experiments on different kinds of lands the last three seasons.—N. H. Pownall, *Holme Pierrepoint, Nottingham.*

[Let no young gardener fear ridicule, at all events he will never receive it through these pages. Many a valuable fact and suggestion is lost in consequence of those to whom they first arise thinking they are not novel. No one should have this misgiving, and if the fact or suggestion is communicated to us, we will take care that a fitting use is made of it.—Eds. C. G.]

CULTURE OF THE ROSE IN POTS.

(*Continued from page* 256.)

Summer Treatment.—A few lines on this part of my subject will, no doubt, be useful to young or new beginners. After the plants have done blooming, cut off all the old flower-stems and give the plants a severe syringing. The plan I follow is, to lay the pot on one side on grass, and in that recumbent position I can effectually syringe the under side of every leaf without wetting the soil too much. This clears off all insects and dust on the lower surface. I then set them up and give a more gentle syringing on the upper side of the leaves. Then the pots may be taken to any open part of the garden and plunged up to the rim of the pots. In this situation they should be regularly watered in dry weather, and no flowers should be allowed to bloom. Look after insects and keep them down by using the means I have already recommended; also, keep all weeds under —let none appear in the pots. This treatment will keep them healthy and vigorous. Water, however, must be withheld towards the end of the summer to check autumn growth and ripen the wood.

Winter Treatment.—This season has its trials for Roses in pots. All tender kinds should be removed and placed under shelter. Cold pits are the best, but give air every fine day to keep down damp. In very severe weather a covering of garden mats will be of service. Hardy kinds may remain in the bed, plunged till required for blooming in-doors or for forcing; but by all means shelter the roots from severe frost by a good covering of horse-litter from the stable, at least two inches thick. This covering will keep out the frost, and will give the cultivator power to lift the pots in the severest weather, should he wish to do so in order to bring them into the Rose-house to start them into growth.

The following is a brief selection of the most approved kinds for growing in pots. I have kept in view the idea of growing for exhibition, as well as for decoration for the greenhouse and conservatory, and also for cutting the blooms for the drawing-room or for bouquets:—

Moss Roses.—*Common* or *Blush*, Cristata, Sanci, Madame Alboni, Princess Royal, Prolific, and William Lobb.

Provence.—D'Angers, d'Avranches, Laura, Queen of Provence, and Sylvain.

Alba.—Félicité, Parmentier. *Blush Pip*, Princess, Lamballe, Unique.

Gallica.—Adèle Prevost, d'Augusseau, Dido, Duke de Trevise, Kean, Sauchette, Surpasse tout, Triomphe de Jaussens.

Hybrid Perpetuals.—Aubernon, Augustine Mouchelet, Baronne Prevost, Duchess of Norfolk, Duchesse de Brastin, Général Jacqueminot, Gloire de France, Jules Margottin, Lady Alice Peel, Madame Knorr, Mrs. Elliot, William Jesse, William Griffiths.

Hybrid China and Bourbon.—These bloom chiefly in early summer naturally. Habit bold, fine foliage. Very suitable for pyramids in large pots. Coup d'Amour, Coup d'Hebe, General Allard, Gloire de Cune, l'Attrayante, Lady Stuart, Paul Perras, Paul Ricaut, Velours, Episcopus.

Bourbons.—A good class, large well-formed flowers, and most profuse bloomers. Armosa, George Cuvier, Impératrice Eugenie, Madame Angelina, Madame Tripet, Madame Souchet, Marquis de Moyria, Speciosa, Viscomte de Cussey.

China.—This class is most abundant in bloom, especially in the later months. They are, however, rather tender. Abbé Mioland, Cramoisie Superieure, Duchess of Kent, Madame Breon, Madame de Rohan, Marjorlin, Mrs. Bosanquet, Napoléon, Prince Eugène, Prince Charles, Reine de Lombardie.

There is a small class belonging to the China section, named Fairy Roses, worthy of culture for decorative purpose. The following are the best:—Caprice de Dames, Fairy, La Laponne, Pumila and Rubra.

Tea-scented.—Indispensable for pot culture, but rather tender. Abricoté, Adam, Caroline, Clara Sylvain, Comte de Paris, Devoniensis, Elise Sauvage, George de Franco, Gloire de Dijon, Goubault, Julie Mansais, Madame de St. Joseph, Madame de Vatry, Mirabile, Nina, Nisida, Pellonia, Souvenir d'un Ami, Taglioni.

Yellow Roses.—Useful on account of the desirable colour. Persian Yellow, Solfaterre, Narciss, Smithii, Pauline Plantier, Isabella Gray, Viscomtesse de Cases, Yellow Noisette, Sulphure Superba.

Noisette.—Valuable for blooming late. Aimée Vibert, Comtesse de Tolosan, La Victorieuse, La Pactole, Vitellina.

Climbing Roses.—Where there is plenty of room, this class forms admirable pot plants, at least those named below. *To train spirally.*—Beauty of Billiard, Fulgens, General Kleber, Ruga, Triomphe de Lacquene, Viscomtesse d'Avisne. *To train upright.*—Belle Marie, Brenus, Chénédole, Fellenberg, Henry Barlet, Madame Plantier, Tippoo Saib, Victor Hugo.

T. Appleby.

NEW FERNS.

Athyrium Filix-fœmina, *v.* multiceps.—A new and handsome addition to the crested forms of hardy Ferns. Its fronds and pinnæ are multifid-crisped; but it is distinct from any previously known form, and combines the singular lacerate tassels of *depauperatum* with the symmetrical fronds of *multifidum*. The fronds are about two feet long, bi-pinnate; the pinnæ terminating in large corymbosely multifid-crisped tassels, consisting of narrow lacerate segments, so that the frond is symmetrically tasselled throughout, while its apex is divided into a large corymbosely branched tuft; the pinnules are unequal in size, irregular in form, and inciso-serrate. Cornwall. *Messrs. Veitch & Son.*

Athyrium Filix-fœmina, *v.* plumosum.—A charming, plumy-fronded, hardy variety of the Lady Fern. The fronds are broad-lanceolate, a couple of feet in height, bi-pinnate; the pinnules are about an inch and a half long, narrow, ovate, much lengthened at the point, divided quite down to the rib into distinct, narrow-linear deeply sharp-toothed segments. The whole aspect is light and elegant in a degree not approached by any other form of this always-graceful Fern. Yorkshire. *Messrs. Stansfield & Son.*

Lastræa Filix-mas, *v.* crispa.—This a beautiful dwarf evergreen Fern, remarkable for its crispy surface. The fronds are lanceolate, with an acuminate apex; the pinnæ thickly set upon the rachis, so that they overlie each other, deeply pinnatifid; the segments oblong, crowded, overlapping, serrated. The chief peculiarity, after its dwarfness and density, and that to which it mainly owes its distinctness and beauty, is the undulation of the parts, which gives it a crispy appearance. This undulation is produced by the points of the pinnæ turning upwards or backwards from the plane of the rachis, so that the surface of the frond is concave, while the convex segments are unequally deflexed, producing an uneven convexity of the surface of the pinnæ. Wales. *Mr. J. W. Salter.*

Lastræa Filix-mas, *v.* Bollandiæ.—This very interesting and handsome form has, when fresh, a remarkably powerful Mignonette-like fragrance. The fronds are about a foot and a half in height, ovate-lanceolate, membranaceous, bi-pinnate only at the very base of the pinnæ; the other pinnules being connected by the wing of the rachides. The pinnules are large, elongate-oblong, obtuse, pointing forwards, somewhat wavy, deeply lobed, the lobes sparingly serrate, the base narrowing and becoming decurrent with the narrow but distinct membrane which borders the secondary rachides. It has a broad, leafy, and somewhat crispy aspect, and is very distinct. Tunbridge Wells. *Mrs. Bolland.*

Lastræa Filix-mas, *v.* paleaceo-crispa.—A handsome subvariety of the *paleacea* type. The fronds broad or ovate, densely leafy; the pinnæ and pinnules, the latter especially, being remarkably close set. The chief peculiarity, however, resides in the undulation of the pinnules, these being twisted and curled so as to give quite a crispy appearance to the surface of the frond; they are elongate-oblong in outline, the basal ones lobate, and the tips of all of them sharply serrated. Bogan Green, Berwickshire. *Mr. R. Hogg.*

Lygodium polystachyum.—A very ornamental and distinct-habited Schizæineous Fern, introduced from Central India, but a native also of Penang. It produces branches in pairs at short distances along its slender stipes and rachis, and these branches are ovate in outline, with a smaller lateral branch often proceeding from their base, bi-pinnatifid, with oblong-obtuse segments, giving it an appearance quite unlike that of other species of the genus. The fructification is concealed by imbricating bracts produced on the under surface of the segments, and does not form spikelets projecting from the margins of the segments of the branches, as in most other kinds. *Messrs. Veitch & Son.*

Polystichum angulare, *v.* decurrens.—A distinct and handsome variety. The fronds are ovate or lanceolate, bi-pinnate, thick in texture, sometimes multifid at the apex. The upper pinnæ are more or less contracted; the pinnules of the lower pinnæ are oblong acute, with a large anterior auricle, wedgeshaped at the base, and nearly all decurrent; those of the upper pinnæ being more decidedly decurrent, smaller, more distinct, generally with the auricle developed, but the remaining part of the pinnule much reduced in size. Somersetshire. *Mr. Elworthy.*

Polystichum angulare, *v.* Kitsoniæ.—This beautiful variety is remarkable from the rachis of its fronds separating into four or five branches near the top, the branches being corymbosely tufted, and the pinnæ which form them dilated and crispy at their tips. The lower pinnæ are normal in character, their pinnules numerous, oblong-acute, setaceo-serrate, and less auriculate than usual, the confluent tips of the pinnæ having a tendency to dilatation. In the branches forming the great tuft which terminates the frond, the pinnæ and pinnules are more or less altered from irregular development, the parts being mostly smaller and more generally confluent than in the lower portions, but there is the same setaceous toothing throughout. The extreme points of these upper pinnæ expand into little crispy tufts. It is altogether a most distinct and beautiful variety. Torquay. *Miss Kitson.*

Polystichum angulare, *v.* plumosum.—This is one of the most beautiful of the varieties of this charming Fern. The fronds are large, pale-green, broad, lanceolate, bi-pinnate, becoming almost tri-pinnate in the most divided parts, thin in texture; the pinnules long-stalked, deeply inciso-lobate, and give a feathery aspect to the gracefully arching fronds. The basal anterior lobe of the pinnules is large, forming the usual auricle, and this is lobed on the margin or bi-serrate with sharp teeth, the other parts being deeply incised, each lobe directed forwards and again cut into sharp-pointed teeth. The rachis of the pinnæ is very slender. The thin texture and deep cutting of the parts are the most important characteristics. Ottery St. Mary. *Mr. G. B. Wollaston.* Somersetshire. *Mr. C. Elworthy.*

Pteris (longipinnula) argyræa.—A most beautiful new

Fern, of an entirely novel and exceedingly ornamental character, being the first well-marked variegated Fern introduced to cultivation. Habit vigorous. Fronds five feet long, including the stout stipes, which is scaly below, and occupies about half of the entire length, ovate in outline, about two feet and a half wide at the base, pedately bi-pinnatifid, the two lower pairs of pinnæ usually, sometimes the third also, having a posterior basal branch; segments of the pinnæ obtusely linear subfalcate, one inch and a quarter long, somewhat wavy, spinulose on the upper rachis, the terminal one caudate. The peculiar beauty of the Fern is owing to the base of each segment, for a quarter of an inch or more of its length, being of a silvery-grey colour, so as to produce a broad silvery stripe about three-quarters of an inch in breadth down the centre of each of the pinnæ and of their branches. It is a most valuable addition to our garden Ferns. Central India. *Messrs. Veitch & Son.*—T. M.

PELARGONIUMS IN POTS.

CHARACTERISTICS OF LARGE FLORISTS' PELARGONIUMS.

The *form* of each flower should be as near a flat circular cup as possible; the petals smooth on their edges, joining so neatly together as to look like a round monopetalous blossom, and the outside, or rim, being scarcely at all reflexed. In *consistence* each petal should be velvety and thick, to stand uninjured a fair amount of sun and air. The *colour*, whatever it be, should be clear and distinct; the blotch or spot on the upper petals well defined, not running into the ground colour, nor reaching so far as the edge of the petal. Both upper petals should be exactly alike, and the three lower ones should also be exactly alike. Varieties with clear white eyes or centres, set off the decided colours to great advantage. In *habit* the plant should be compact and shrubby. The foliage thick and healthy rather than extra large. The flower-stems stout and strong, raising the flowers nicely, but not too much above the foliage. The footstalk for each flower in the truss should also be stiff and strong, and just long enough to allow room for all the flowers in the truss to expand freely, but not so long as to give enough room for one flower to straggle away from the rest. Each truss will look most symmetrical when it consists of five blooms.

Soil.—Provided this be obtained rich, light, sweet, and well aërated, there need be no difficulty. I prefer soil obtained from the top spit by the roadside in a loamy district, laid up loosely for a twelvemonth, turned over once or twice, of that two parts. Of very rotten old hotbed dung, or decayed leaves, or old cow-dung, in all cases well sweetened by frequent turning, of that one part; and nearly one-part of fine sand and some little bits of charcoal. The above I would use chiefly for final potting. For early potting—say, from August to the new year, I would use the light, sandy soil, and scarcely any manuring matter whatever. Fresh, healthy, moderate, rather than vigorous growth is wanted in the autumn months, and during most of the winter. When these materials have failed me, I have gone to a ridged-up piece of ground in the kitchen garden, and scraped off very thinly some of the fine, well aërated flaky soil from the tops of the ridges on a dry day; and when this had a little well aërated sweet leaf mould, and a little silver sand, it grew Pelargoniums admirably. I always prefer, however, new soil when it can be obtained, and also to make the compost of the well-aired ingredients as needed, instead of having them mixed together for long periods beforehand. When turf can be obtained, or a thin layer immediately below turf, I prefer that it should be laid in a heap as hollow as possible, in order that the air may go freely through it and sweeten it for a twelvemonth, which does not make it so fine and waste the fibre, like frequent turnings with a spade before using. It is of the first importance for securing healthy, stubby growth, that the compost be sweet and well aërated, and neither wet nor dry when used. The amateur should not be above testing the sweetness by smelling it carefully.

In *selecting* plants to commence with, choose those that are dwarf and stubby, in preference to those that are long and lanky, or badly formed. A nice little plant in a 60-pot is often far better than a larger one in a 48-pot or a 32-pot. If the plant has several shoots so much the better. If not, it must be made to produce them by stopping, according to the plan you mean to train. For instance: Suppose that you wish to have something of a novelty and thus prefer to try

Standards, then it will be best to select plants with one stem, and keep growing that alone until in the first or second season, by keeping the plants always in a growing heat, and removing with the point of a penknife each side-bud as it appears, you have a stem from three to five feet or more in height, or as much more as you like. For this purpose the plants should have a temperature in winter of from 45° to 50°, and in summer from 55° to 65°. No leaves should be removed until they fall, and as they fall they will leave a clean stem behind them. The picking out the buds prevents all side-shoots forming. When high enough, whip out the terminal bud, or take away an inch or so of the point, and leave the buds for six inches or so downwards untouched, to form your future head. That secured, the plant must be treated afterwards just as you would a dwarf bush plant, only more care should be taken, if possible, to keep the head stubby; so that, whatever its size, no support should be needed but the neat central stake that supports the stem. The chief extra care will be in watering, that none lodges on the stem where it joins the soil, or gangrene and damp will take place. On the same account in all repotting, the stem must never be placed deeper than it was in the small pot with which you commenced.

In forming Pyramids, the same minutiæ as to potting and watering form chief elements of success. Here side-shoots that will extend as far as and beyond the rim of the pot, as the base of the pyramid, are of as much importance as the central shoot. In a young plant, therefore, the point of the shoot must be stopped to cause these side-shoots to form, and stoppings afterwards must take place, so as to secure layers of shoots from six to twelve inches apart, according as the plant is weak or strong-growing; one shoot being always selected to continue the leader. From this stopping, several seasons will be required to make a pyramid from three to five feet in height, and with a base of from two feet and onwards in diameter. This style of growth is most suitable for verandahs, fine lighted staircases, lofty greenhouses, &c. When the lower ring of shoots is fastened to a hoop beneath the rim of the pot, a little hasping with fine thread to the one stake in the centre, will be all the support that will be needed for home decoration. When forming and formed, the general treatment will be the same as for low

Bush Plants—grown so as to resemble three parts of a circular ball. This is the most general way in which Geraniums are cultivated. If the plants are not raised by the grower, I consider early spring the best time for ordering them. Something may be gained by having them in summer and autumn, by sacrificing mere flowering to growth; but next to a whole season, so far as display is concerned, may be gained by having the plants in the spring, and making flowering secondary to the growth and the forming of the plant. When such young plants as I have advised having, are not only allowed but encouraged to bloom, then the autumn, winter, &c. management will be much the same as for established plants. The subjoined hints have reference to the forming the skeleton of a young flowering plant at first from plants obtained in the spring, just premising that other plants must have similar principles of

Training, though the time lost cannot easily be made up. Suppose, then, as first imagined, that we have a young bushy plant in a 60-sized pot in April, and that it has a leading shoot, and three secondary shoots not far above the junction of the stem with the soil. In such a case at first, we let well alone. If there is only one shoot we stop it, in order that the buds in the axils of the leaves may throw out shoots, and by the process lose just so much time in waiting to have a proper commencement. Some three or more side-shoots being obtained in addition to the central leading one, our first object is to encourage growth; and therefore, as soon as the little pot is crammed with roots, we shift it into a 48, or the size larger, when growing freely. If all the shoots are about equal in strength we let them all alone. If the central one is taking the strength from the side ones we nip out its point, and this for a time will cause more flow of sap into the unstopped shoots. We place a small stick in the centre for the centre shoot. We tie out the side-shoots by placing a small twig in the soil for each, or fastening them with a hasp to a string round the rim of the pot. In the first case I prefer little twigs, because care must be taken not to depress these shoots too much at first, or they are apt to slip off from the stem, and that would destroy the symmetry of the plant. It is also of importance both in this bush system and in pyramids that the lowest layer of shoots should not be much depressed to the sides of the pots, or the sap will flow into them less vigorously than those that start from the stem at a higher or acuter angle upwards. Ere long, if all goes on well, the plants will want a shift into a 32-sized pot, and unless where more than ordinary care can be given that

size will be large enough for the first summer. When the roots are catering freely in the new soil and getting towards the sides of the pot, or touching it, the points may be nipped out of these side-shoots, and out of the leading shoot too, if not already done. Small shoots will proceed from each of these side-shoots; and if three are selected on each, and the rest disbudded, each main side-shoot will branch something like a deer's horn, giving you altogether nine shoots for your base line for the first year. A similar layer may be formed from the stopped central shoot; and the skeleton of the plant is thus formed. The number of shoots you may vary according to your own fancy. The treatment in thus quickly forming compact specimens must be a little different to that given to established flowering plants. The atmosphere should be closer, moister, and warmer, and yet the plants must not be drawn for want of air. Cleanliness, at all times essential, must be extra attended to. Slight syringings after hot days in the afternoon will assist them; but care must be taken that no drops of water rest on the leaves when visited by the sun of the following day. If, notwithstanding air-giving early, the leaves should be damp when the sun is entering on the house, shade until the leaves are dry. At this time the plants will like a little shade in the two or three brightest hours of the day. If all has gone well by the end of August, full sun and plenty of air should be given to the plants, and the terminal buds should be nipped out of all the shoots. A point of a penknife would do this nicely. Plenty of air should then be given, every ray of sun that can be obtained, and not a drop more water than will be necessary to keep the plants from flagging. Hardening or ripening the shoots is now the chief concern. By the middle of September the plants would be better in a pit out of doors, fully exposed to the sun, but with glass to guard against rains, &c. These plants should be housed by the middle of October, and kept warmer than older plants over the winter—say from 45° to 50°. During the whole of their growth, whenever a single green fly appears, smoke directly, and if you syringe at all let it be on such a day as you may hope the plants will dry quickly. From these stopped shoots young shoots will come from almost every leafstalk, and thinning may be required, and also stopping, if one or several of these young shoots are much stronger than the rest on the same plant. This regulating will enable you to have a symmetrical head of young shoots producing their succession of trusses of bloom. Such plants will bloom well in the 32-pots, if assisted after growing freely and knotting for bloom, with manure water; but the plants will be finer, if a part is shifted into 24-pots in January, and a lot more put into 16-pots in February. The 32's would bloom early in May; the 24's in June; the 16's in July, and so on. From that time we treat them as established plants, but previously to saying something on that subject, I would allude to the general

Arrangement of the Plants in Houses.—At all times, and especially when young, if the plants are grown in pits they should be within a few inches of the glass, in order that with air and light combined, the plants should not be drawn up weakly. When grown in span-roofed houses, or even in lean-to-roofed houses with plenty of front light, and if the plants are frequently turned, they may be kept as sturdy at the distance of a yard or more from the glass, as if they were only a few inches, *provided* the glass is bright and clean, and no climbers or other plants stand between direct light and the Geraniums. At all times, but especially in winter and spring, we prefer choice Geraniums to stand on *wood*, or each pot to be elevated on another pot inverted. When such plants stand upon a bed of earth, of ashes, or of sand, the moist exhalations are apt to rise and settle upon and injure the leaves. I have known cases where the *spot* was pretty well triumphant, until sand platforms were changed for wooden shelves, with a free circulation of air all round, beneath as well as above the plants. At all stages of growth, whether small or large, crowding is their abhorrence. The placing of the plants when in bloom we leave to the taste of our readers, believing that those who grow the plants have the best right to please themselves.

Having cleared the way by showing how specimens are to be quickly made, we now refer to established plants of two or three years of age; and as August will be entered upon before this meets the light, we will first describe the

Summer, or rather the Autumn Treatment of such Plants.—As soon as the plants fade and get unsightly, remove them from the house to an open, sheltered place out of doors, where they can have every possible ray of sunlight. Never mind though most of the leaves get brown and curled, and fall, if there is one or two green at the points of the shoots sufficient to keep the stems plump whilst the sun is hardening and ripening them. In such a position the weather must be very dry indeed, if much watering is needed. A slight syringe among the stems, when the weather is very hot and dry, is better than giving much water at the roots. When it is necessary to moisten the pots a little, I prefer pouring the water between them on the ground on which they stand, instead of pouring it into the pot. Such a hot, dry period is just the very thing for the plants at that time. They will be more injured from wet than dryness. If heavy showers come suddenly, turn the pots over on their sides, and set them up again when dry, sunny weather returns. If the weather should be continuously wet, endeavour to place the plants where, by means of glass, the wet may be thrown past them, and yet there may be a free circulation of air, and the chance of catching every ray of sunlight. The more the shoots are like Oak shoots in hardiness, the better will the plants and cuttings from them thrive.

Pruning.—After fourteen or twenty days of this ripening process, or more if convenient, the plants may be pruned. Two things are to be kept in mind—First. That upon this pruning the form of your plant next season depends; and, second, that from every bud or joint you leave of the current season's well-ripened shoots, you may expect a flowering-shoot the following season. Hence, if you wish to fill up a deficiency, you must leave a suitable shoot for a third or more of its length, to be fixed in the desired position. If you wish your plant of next year to be bushier and considerably larger, then cut so as to leave three or four buds to a shoot. If you wish to continue it in the same sized pot, and the plant to be much the same in size the next year, as in this, then you must prune freely down, so as to leave one or two buds as a sort of spur at the base of the shoots. It will thus be seen, that if little training had previously been given to the plant, the cutting-down time is a suitable one for giving or correcting the desired outline. The training now given, however, cannot be depended on as equal to that given earlier.

After-treatment.—If the plants were benefited in being kept dry before pruning, they like it still better afterwards. The plants will break all the more healthily if assisted with little but their own concentrated juices. Rains, therefore, now should be sedulously avoided. In fact, choice plants are safest under glass, with plenty of air around them. If the weather continues dry, water the ground on which the plants stand, instead of watering the pots. A slight dewing over the stems will also do them good in hot weather. Thus treated the buds will break slowly, but equally and sturdily, all over the plant. When fairly broken a little water may be given, but unless in extreme hot weather, the plants absorb nearly enough from the moist ground on which the pots stand, until it is time to

Repot them.—This I prefer doing at this autumn period, in these established pruned-back plants. When the young shoots are about half an inch in length, or even less than that, after pruning we leave the roots untouched, to help in the breaking of the fresh shoots; and these fresh shoots, kept afterwards growing, assist the forming of fresh roots. The soil being previously procured, sweet and well aërated, and neither wet nor dry—that is, when you take a little in your hand and squeeze it firmly by closing the fist over it, it will be moist enough to retain the the traces of your fingers; but when unclasping your fingers you lay it down on the potting-bench, it will be dry enough to fall to pieces—and that soil at this potting being chiefly sandy loam, with a very little sweet leaf mould, and clean pots being also in readiness, and mostly a size smaller than the plants are now in, bring the plants to the potting bench and commence operations. R. Fish.

(*To be continued.*)

HORTICULTURAL SOCIETY'S FLORAL COMMITTEE.

A Meeting of the Floral Committee was held on Thursday last, at the Rooms, 8, St. Martin's Place, Trafalgar Square. J. J. Blandy, Esq., Vice-President in the chair.

Mr. Bragg, of Slough, sent a Seedling sweet-scented-leaved Pelargonium, called *Madame Czillag*. It is an improvement on Chandler's *Delicatum*, and received a Certificate of Commendation as a dwarf, free-blooming variety.

A fine *Dark Crimson Candytuft*, from Mr. Dunnett, of Ded-

ham, Essex, was much admired, and was considered a valuable acquisition.

Messrs. Carter & Co., of Holborn, sent a large collection of new Annuals, of which the following received Special Notice:—*Clarkia pulchella Tom Thumb*, a very pretty dwarf and very bushy plant, a complete mass of bloom, received a Certificate of Commendation. *Linaria macroura splendens*, a very fine, dark purple variety, was also Commended.

Miss Thompson, of Mount Radford, Exeter, sent *Polystichum aculeatum corymbiferum*. It is a very ornamental form of this Fern, having tassels at the ends of the fronds; and received a First-class Certificate. Also, a variety of *P. angulare*, which was thought to resemble the variety *lineare*.

Messrs. Veitch & Son, of Chelsea, sent a noble plant of *Cordyline erythrorachis*. This is a variety of *C. stricta*, and has long, gracefully curving leaves, with a bright red midrib. As an ornamental-foliaged plant this was much admired, and received a First-class Certificate. From the same gentleman came *Tachiadenus carinatus*, a pretty free-blooming plant, with flowers of the same character as *Lisianthus Russellianus*, but smaller and of a dark purple colour; and this received a Certificate of Commendation.

A number of Seedling Fuchsias were sent by Mr. Edw. Banks, of Sholden, near Deal, remarkable for the size of their flowers and the fine habit of the plants. Those which attracted the greatest attention were *Garibaldi*, with large flowers, scarlet reflexed sepals, which are rather coarse, and light purplish slate-coloured petals, a fine habit and profuse bloomer, received a Certificate of Commendation; *Lord Elcho*, a fine large flower, with reflexed deep coral-red sepals, and very dark violet-purple petals, received a First-class Certificate. *Prince Leopold* is somewhat similar to the preceding, and also received a First-class Certificate. *Minnie Banks* is a very fine light variety, with white reflexed sepals, and scarlet petals: it also received a First-class Certificate.

Mr. D. Cunningham, of the Palace Gardens, Fulham, sent a Seedling Verbena, called *Lucy Tait*, of very dwarf habit, and a free bloomer. It was considered a useful variety for edging flower-beds, and received a Certificate of Commendation.

A Commendation to Fuchsia *Negro* (Banks), a bold, beautiful dark mulberry corolla, and scarlet reflexed sepals.

A Commendation to *Meteor*, a dwarf, good-habited, variegated Geranium, from Messrs. Parker and Williams.

A Commendation to *Princess of Prussia*, a globe-flowered, scarlet Geranium, from Mrs. Conway, Earl's Court, Old Brompton, recommended chiefly as a pot plant for the conservatory.

THE MIXED SHRUBBERY AND ITS TREATMENT.

(*Continued from page* 259.)

Aucuba Japonica.—This shrub is said to endure the smoke of large towns better than most things; but it is also a great acquisition in the more pure country districts. It is never of fast growth, but makes a compact bush, the head often being more flat than rounded. It will survive very rough treatment, transplants well, and will bear cutting-in; but this is seldom wanted, as its close, uniform growth requires no improvement, and it ought to be planted with sufficient latitude to allow it twenty years growth, at least, without disturbing it. It is more at home in a rather stiff soil than a light one, and no plant removes better than this does. Planted in the front of a shrubbery, its pale yellow leaves contrast well with the deeper tints of Evergreen Box, Euonymus, Phillyreas, and others, and it is also invaluable for confined situations. I have seen a plant kept many years in a pot placed in a very smoky situation, to screen an unsightly view from an important window; and though often covered with soot, it looked well after a washing. It is, therefore, useful on this account, and is a great favourite with the park-keepers in London, and elsewhere.

Arbutus.—A fine plant of this deserves a place on the lawn; but as every plant is not a good one, and as every situation does not suit this shrub, its appearance is not always so good as the Portugal Laurel. Dry soils resting on chalk seem to suit it best, and where a plant is well clothed with heavy foliage to the ground, and in the autumn loaded with its fine Strawberry-shaped fruit, it looks well. But in many instances the plant is liable to get naked at the bottom, even where it is favourably placed, and its beauty is then gone. In the latter case, cutting down the whole plant to within a foot or so from the ground will often occasion a vigorous growth of fresh side-shoots, which in two or three years become excellent plants again. In cutting down this or any other evergreen, when it is possible to retain a small branch of the old plant with leaves on it, there is a more vigorous growth in the young shoots, and this old branch can be cut off afterwards. In fact, this old branch with its old leaves very often preserves the life of the plant when the latter is sickly, as by its vitality it keeps all the functions going, which receive a severe check when the plant is cut down wholesale. The fine pendant flowers of the Arbutus are much admired in autumn, and altogether the plant is a universal favourite when seen to advantage; but when sickly, distorted, or not at home, it looks badly.

Spindle Tree (*Euonymus Japonica*).—This handsome, upright-growing shrub is not so much grown as it ought to be; but it is becoming more common, especially as it is reported to endure the smoke of large towns better than most shrubs. The variegated kind is in most esteem, simply, perhaps, from the fact of its being variegated, otherwise the plain green is the most handsome. It likes a rather dry soil, where it ripens its shoots better, and endures the winter without injury to its foliage.

Griselinea littoralis.—This is comparatively a new evergreen shrub, and I have had but little experience with it except against a wall, where its thick-set evergreen leaves, of the shape and size of those of the Majorca Box, give it a nice compact appearance. I have not seen it flower, but can vouch for its hardiness. It is of slow growth, and eventually may be useful where such shrubs are wanted to form dwarf, compact bushes. If planted in a miscellaneous shrubbery let it have a place near the front.

Berberis.—This numerous family vary very much in outward appearance. The long pinnated leaves of *B. Japonica* contrast strongly with the smaller-leaved species, of which *B. Fortunii* is not the least. But the common *B. aquifolium* or *Mahonia aquifolium*, as it is often called, is after all the most showy for common places, and being of easy growth will often thrive where nothing else will, as it seems to prosper in most situations—perhaps best in a rather deep, moist soil; but *B. Fortunii* and *B. Darwinii* deserve a wall. But the long foliage of *B. Bealii* and *B. Japonica* cannot well comport themselves to such a place; it is only when planted out on the lawn in detached bushes that they really assume that fine appearance for which they are so much admired.

Daphne.—A large mass of the *D. Pontica* looks well when it is closely feathered to the ground, and its deep green foliage entitles it to more consideration than it often receives. A rather moist soil and somewhat shaded suits it best; but I have seen a healthy mass of it thirty feet or more over, on a very dry, open situation. It is not of fast growth, but when once it gets into shape it keeps so much longer than most ordinary shrubs of a like kind.

Chinese Privet.—When in flower this plant looks well. In fact, it does so at all seasons; the foliage being hardy, endures severe weather better than the Arbutus, and it also has a flower more prominent in the distance. Flowering at a season when shrub-flowers are far from plentiful (September), its value is much enhanced. It likes a dry, sheltered corner, and amply repays a little care in its choice of position.

Garrya elliptica.—The long graceful-looking catkins which hang on all sides of this plant all winter give it a rich appearance at a season when such things are far from plentiful. A dry stony soil suits it best, and it is sometimes trained against a wall; if in the latter position, do not prune it too closely, or the flower-bearing shoots will be all cut away. It is of medium growth, spreading rather than upright, and densely clothed with foliage which stands the weather well.

Furze.—Common as this plant is, the flower gardener has much to accomplish yet ere he can furnish the parterre with a plant that can exceed it in brilliancy of colouring and density of bloom. A waste, or fox cover, of some acres of this hardy plant presents a mass of bloom in May, which it is vain to look for in any cultivated spot; the adjoining heath (also waste) being the only thing that can approach it, unless in certain districts where Broom takes the place of Furze, in which case the colour and features are much the same. But it is not the wild Furze that I wish to call attention to, but the double-blossomed one, which remains longer in flower, and which, by its dense mass of bright orange-yellow blossoms, presents a fine feature in early spring, especially when it is seen peeping out amongst other evergreens.

The flowers being all on the head of the plant, and sufficiently numerous to cover it, present a mass not to be met with in any other shrub, not even excepting the Rhododendron. Dry stony ground suits it best; and it bears cutting down very well after flowering. It also propagates more freely than many shrubs—by cuttings put in during the autumn. Altogether, a few plants deserve a place in most shubberies, and being of low growth, ought to be near the front.

Phillyrea.—This is of rather slow growth; but its dark glossy green leaves, thickly set on a well-formed bush, give it an excellent appearance. There are two or three varieties of this shrub, but all have the same feature of forming a round expanded head, the bottom being much smaller; on this account the plant often has the appearance of being lobsided. This evil may in a measure be guarded against while the plant is young; and it must not on any account be too closely pressed on with other trees. It does not bear cutting down so well as many other shrubs, nevertheless it may be done at times with success; much depends on the health of the plant at the time of undergoing the operation. A dry stony soil suits it best.

Box.—Little need be said of this plant, as the common one is too well known; but the Balearic species deserves to be more freely planted. A rather stiff soil approaching to a loam suits the Box best.

Alaternus.—The foliage of this plant being inclined to spot, renders it less a favourite than it used to be. It thrives best on a rather stiff soil.

Rhododendron.—Unquestionably this is the most handsome of all our evergreen shrubs; but as Mr. Appleby, at page 379 and succeeding chapters, has entered so fully on the merits of this useful shrub, and also given such copious directions about its culture, I can only indorse what he has said.

Ivy.—Although this is usually regarded as a creeper, it sometimes forms itself into a close compact shrub of no mean pretensions; but its greatest beauty is where it clothes some aged tree, and, throwing out abundance of short branchlets, becomes more or less an object of curiosity in accordance with the foundation it has. An old gnarled Oak becoming covered with Ivy is in time killed by it, and, the smaller boughs falling off, the main trunk and large limbs are a dense mass of Ivy, forming a grotesque appearance when seen in the twilight. But the most beautiful feature is when it encases a large Spruce or Larch Fir tree, and by degrees kills the tree, and assumes the same proportion itself—a perfect cone, in fact, and that of the densest green; and in many instances so uniform in its proportion, that no mechanical aid can improve it.

The above being the commonest evergreen shrubs are not put forth as the best selection to plant a choice clump or border; but for the ordinary purpose of concealing an unsightly object, or for rendering cheerful some naked spot, common shrubs are the best. And it will be a long time ere our Eugenia, Illicium, Pernettia, Skimmia, Desfontania, and others of their class will accomplish this task; but I will in a future chapter describe them. J. Robson.

VARIETIES.

Biscuits (Fr. twice-baked), small, flat bread, rendered dry and hard by baking, in order to their preservation. They are divided into two classes—the *unfermented* and the *fermented*. *Unfermented* or *unleavened* biscuits, generally known as *common sea-biscuits* or *ship-bread*, are made of wheaten-flour (retaining some of the bran), water, and common salt. The materials are kneaded together, either by manual labour—that is, by the hands and feet of the workmen—or by introducing the materials into a long trough or box, with a central shaft, to which a series of knives is attached, and which is made to revolve rapidly by machinery. The mass of dough so obtained is then kneaded and thinned out into a sheet the proper thickness of the biscuits, by being passed and repassed between heavy rollers. This sheet being placed below a roller with knife-edge shapes, is readily cut into hexagonal (six-sided) or round pieces of dough of the required size of the biscuits. The indentation of the slabs of dough, in the case of the hexagonal biscuits, is not complete, so that all the biscuits cut out of each slab remain slightly adhering together. These slabs of biscuits are then introduced into an oven for about fifteen minutes, and are placed in a warm room for two or three days, to become thoroughly dry. The more modern oven is open at both ends, and the biscuits, being placed in a framework, are drawn by chains through the oven. So rapidly is this operation conducted, that about 2000 lbs. weight of biscuits are passed through one of these ovens every day of ten hours.

Captains' biscuits are prepared from wheaten-flour, water, with common salt, and butter, with an occasional small dose of yeast to cause partial fermentation. Milk is also sometimes employed. *Water or hard biscuits* are made of flour, water, with variable quantities of butter, eggs, spices, and sugar. *Soft biscuits* contain increased quantities of butter and sugar. *Yeast biscuits* are those the dough of which is mixed with a small quantity of yeast, yielding more porous biscuits. *Buttered biscuits* are made with much butter and a little yeast. Other varieties of biscuits are named in the following table, which gives the materials added to the sack of flour, 280 lbs. in weight:

	Water or milk. quarts.	Butter. lbs.	Sugar. lbs.	Flavouring. Car'way seeds in ozs.	Eggs.
Captains'	10	15	—	—	
Abernethy	8¾	17½	17½	17½	
Machine	5¾	58	14		
American	10	40	—		
Jamaica	8¾	17½	17½		
Coffee	8¾	17½	—	—	140

Great care must be taken in the manipulative part of the process to incorporate the ingredients in a systematic manner. Thus, the butter is mixed with the flour in a dry condition, and then the water or milk added; and when eggs are used, they are thoroughly beaten up with water, and the sugar (if the latter is required) and the egg-paste added to the dough, which has been previously prepared with butter, or without butter. The various kinds of biscuits in the preparation of which yeast is employed, present a more spongy aspect than the unyeasted biscuits. Occasionally a little sesquicarbonate of ammonia (volatile salt) is added, to assist in raising the dough, and make a lighter biscuit. There are three principal varieties of the yeast or fermented biscuits, and the following table gives the ingredients used in their manufacture from a sack of flour, or 280 lbs.:—

	Water or Milk. galls.	Dried Yeast. lbs.	Butter. lbs.	Sugar. lbs.
Oliver	10½	4½	35	—
Reading	—	4½ to 5	25 to 30	—
Cheltenham	10½	—	—	5

Soft or *spiced biscuits* are prepared from flour, with much sugar, a great many eggs, some butter, and a small quantity of spices and essences. The eggs tend to give a nice yellow cream colour to the biscuits, which is occasionally imitated by the admixture of a chromate of lead (chrome yellow); but this is dangerous, and has given rise to several cases of poisoning. Several of the soft or spiced biscuits are referred to in the following table, a sack, or 280 lbs., being the amount of flour employed in each instance:—

	Eggs.	Sugar. lbs.	Butter. lbs.	Flavour.
Tunbridge Cakes	930	140	23	Orange flower. Water Currants. Citrons and Caraways.
Shrewsbury	93	93	93	Volatile salt. Cinnamon. Nutmeg or Mace.
Ginger Wafers	600	112	112	Ginger.
Victoria	750	70	80	Essence of lemon.

The extent to which biscuits are now consumed may be learned from the fact, that several of the largest biscuit-manufactories each prepare and throw into market every week from 30,000 to 50,000 lbs. weight of biscuits of various kinds. One of the largest and most complete biscuit-manufactories in England is that of Carr at Carlisle, whose biscuits, sold in tin-boxes are well known. Another bakery of this kind is that of Harrison of Liverpool.—(*Chambers's Encyclopædia.*)

Test of Colonial and Foreign Timbers.—Last May 5th we were present during a series of experiments, by Mr. James W. Dunlop, at the engineering establishment of Messrs. P. N. Russell & Co., Sussex Street, upon the transverse strength of various samples of colonial and other timbers. The object the experimenter had chiefly in view was, we believe, to prove that the strength of our colonial timbers had been much underrated; and that, for building purposes in particular, heavier timber was generally used than there is any occasion for. The experiments were witnessed with great interest by a number of gentlemen skilled in such matters (who were present by special

invitation), and all expressed themselves highly satisfied. They occupied fully two hours, with the following results :—

		Bore a strain before breaking, of
1.	Ironbark, taper section 1¼ deep, equal to 1 inch square	1305 lbs.
2.	Ditto, ditto, No. 2, ditto, ditto	1221 ,,
3.	Grey ironbark, new timber, ditto, ditto	1313 ,,
4.	Ditto, No. 2, ditto, ditto	1165 ,,
5.	Ditto, old timber, ditto, ditto	1249 ,,
6.	Ditto, No. 2 (bad specimen), ditto, ditto	913 ,,
7.	Red ironbark, old timber, ditto, ditto	997 ,,
8.	Blackbut, new timber, ditto, ditto	857 ,,
9.	Ditto, No. 2, ditto, ditto	829 ,,
10.	Ditto, old timber, ditto, ditto	969 ,,
11.	Ditto, No. 2, ditto, ditto	773 ,,
12.	Blue gum, new timber, ditto, ditto	773 ,,
13.	Ditto, No. 2, ditto, ditto	745 ,,
14.	Mangrove, ditto, ditto	521 ,,
15.	New Zealand Kaurie, ditto, ditto	549 ,,
16.	Ditto, No. 2, ditto, ditto	535 ,,
17.	Oregon Pine, ditto, ditto	749 ,,
18.	Ditto, No. 2, ditto, ditto	696 ,,
19.	Cedar, ditto, ditto, ditto	311 ,,
20.	Ditto, No. 2, ditto, ditto	521 ,,
21.	White American Pine, ditto, ditto	423 ,,
22.	Ditto, No. 2, ditto, ditto	409 ,,
23.	Ditto (with blue gum inserted in top for straining piece), ditto, ditto	409 ,,

The pieces experimented upon were supported on hardwooded bearers, twelve inches apart.—(*Sydney Morning Herald.*)

TO CORRESPONDENTS.

Mulberry Wine (*L. J.*).—Take Mulberries when they are just changed from their redness to shiny black; gather them on a dry day when the sun has taken off the dew, spread them thinly on a fine cloth on a floor or table for twenty-four hours, and boil up a gallon of water to each gallon of juice. Skim the water well, and add a little cinnamon slightly bruised. Put to every gallon six ounces of white sugar candy finely beaten. Skim and strain the water when it is taken off and settled, put to it the juice of the Mulberries, and to every gallon of the mixture put a pint of white or Rhenish wine. Let the whole stand five or six days in a cask to settle, then draw off the wine, and keep it cool. This is a very rich cordial.

Various (*Beginner, Hampshire*).—The largest Strawberry we know is *Myatt's Mammoth*, but it is quite worthless. *Sir Harry, Admiral Dundas*, and *Oscar* are good sorts, and when well grown attain a very large size—large enough for any purpose. You will find *Cellini, Kerry Pippin, Golden Winter Pearmain, Nonpareil, Ashmead's Kernel*, and *Sturmer Pippin* six good dessert sorts of Apples for bush culture. Of Pears for the same purpose we would recommend you *Louise Bonne of Jersey, Baronne de Mello, Marie Louise, Knight's Monarch, Josephine de Malines*, and *Winter Nelis*. Cuthill's "Treatise on the Strawberry" can be had at our office by enclosing thirteen postage stamps.

Delphinium (*Mrs. Melville*).—The flowers of the two kinds fell to pieces before we saw them, and we have been trying to get back buds to open in water but failed. They are more difficult in that respect than Scarlet Geraniums.

Training Roses Low (*The Glen*).—We never recommend the old way of training down new Roses. It was all very well when there were only Moss and Cabbage Roses and the like of them, to train them down and to moss-mulch the ground under the shoots, and to look at Roses and to smell them for a space of four weeks, and sometimes of three weeks or five weeks out of the fifty-two. But the plan is good enough, and as good as ever it was for those who like it. But Roses cannot thus "indiscriminately" be grouped or trained together; because Roses on their own roots grow stronger than on stocks, and some of them four times stronger than we know them as standards. Nothing is better than the old hooks for keeping them down: at least go to as little expense as possible, as you may alter your views after a season or two.

Name of Shrub (*A Subscriber*).—It is impossible to make out any plant, unless it be some very remarkable one, from the mere tip of a young shoot, unless we happen to be well acquainted with it from having seen it many times. It so happens that we have seen your shrub frequently, and have a specimen of it too. We believe it to be the *Aristotelia Macqui*, a native of Chili. It is as you say, almost an evergreen shrub.

Crinoline Pots (*G. H.*).—We have heard only that Mr. Summers, of the Crystal Palace Nursery, meant to introduce this style of pot after he himself had proved them by twelve months' practice, begun towards the end of last autumn. There is no way of deciding on the real merits of a seedling Scarlet Geranium, except that of seeing a large plant of it in bloom in a pot or border from the end of May to the 20th of September. Earlier or later in the season, it is mere guess work, and no good judge of them would risk an opinion. Cut flowers of them sent through the post fall to pieces.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

July 31st. Newmillerdam.

August 15th. Omskirk and Southport. *Sec.*, Mr. James Spencer, Ormskirk. Entries close July 31st.

August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 5th. Keighley Agricultural Show. *Sec.*, R. Fawcett. Entries close August 29th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

MERTHYR TYDVIL SHOW.

There is something we like in the association of flowers and chickens at this season of the year, and the more than beautiful display at this place half tempted us to try our hands at reporting flowers. But the names! We thought of the immortal Sam Slick's young lady, who, being asked if she understood flowers, said "Very little." Indeed, the only ones she cared for were the "Via Lactea" and the "Delirium Tremens."

Then we imagined ourselves flowers and poultry; and we thought of the days, many days ago, when all the world was "waiting for Peel," and the grand old Duke of Wellington filled all the offices "en attendant," and the caricaturist (for there were caricatures in those days), represented the noble old man as half Commander-in-Chief and half Prime Minister; and then we thought of the Minister of State in 1848, in Paris, as represented in "Jerome Paturot," by the clever L. Reyband, Minister of War and Marine, consulting a red book for the former, a blue book for the latter, and at last confounding both together; or we thought of the new Foreign Minister taking his seat for the first time, and being informed by his Chief Secretary, there was but little on hand. There was a misunderstanding at Tiflis, a coolness at Trebizond, and a grave affair at Teheran. Now, as after an hour, the new Secretary had the three in most admired confusion, putting the grave affair at Tiflis, and the misunderstanding at Trebizond; so we thought, when we viewed the names and classes, we should never keep them separate, and lamenting our want of knowledge, we turned to our poultry, satisfied, however, after all, that we were flower judges, just as Liston was always convinced that his *forte* was tragedy.

Four years ago, when this Show first took place, the classes were not understood nor the merits of the birds. It was instituted to remedy this ignorance, and amateurs, and, still more, the workpeople, are under great obligations to Mr. Crawshay, of Cyfarthfa, for his constant and zealous endeavours to forward these exhibitions. Prizes are offered for poultry, flowers and vegetables, and they are well competed for. We can understand the treat it is to the working population of the mines, to get an hour or two in these gardens, or among the Fowls or Ducks that figured as competitors on this occasion.

Every description of fruit, flower, and vegetable was shown in this spacious hall. Tropical plants and shrubs of marvellous delicacy and rare beauty attracted the eye; grapes, pines, melons, peaches, strawberries, and humbler currants and gooseberries, tempted the palate; while the ear was courted alternately by the Cyfarthfa band just returned from its triumphal visit to the Crystal Palace, and the crowing of the cocks.

Practice makes perfect. Every class is well understood, and there are good birds in all. The Show is becoming known, and many of the celebrated among exhibitors sent their birds. It is one of the characteristics of this exhibition that the workmens' classes increase and improve. At many places they are recollected only as failures of the early days of the societies; but here they not only increase in number, but the quality of the birds shown would justify the owners in entering into general competition.

Dorkings came first. Mr. James Buckley's birds were good enough to win easily. Middlesex, Aylesbury, Somersetshire, and Worcester came to Merthyr to compete for the *Spanish* prize. It was a very good class, as may be supposed when Mr. Rodbard was only commended and Mr. Fowler second. Mr. Martin, of Worcester, showed beautiful birds. Mr. Crawshay took first for *Game*; the second went to Mr. Boghurst, of Essex. We profess only to mention the more meritorious pens, as the prize list was published last week, and therefore pass at once to the *Hamburghs*. They are favourites in this county, and were well represented. When Hamburghs come from Worcester we have always a suspicion they have had to do with the celebrated Archer, and we believe such was the case here. Mr. Martin, however, won with difficulty, hard run by Mr. Llewellyn, of St. Fagans. This was a very good class. We seldom meet with a class for Black Hamburghs, but there is one here. There is not sufficient care, in our opinion, taken in selecting these birds.

When there is a class on purpose for them they must be shown subject to the same rules as other Hamburghs. It is not enough that the plumage be black; the combs must be straight and firm, and the ear-lobes white. It will be saying everything for *Malays* when we say Mr. Ballance was first, and Mr. Fox, of Devizes, second. In the other classes, the Sebright *Bantams* and Mr. Fowler's *Brahmas* deserve separate notice.

The *Dorking Chickens* were excellent, and the *Spanish* remarkably good. Mr. Rodbard here took his revenge, carrying off both prizes. Mr. Martin's *Game Chickens* were perfect. Mr. Fowler's *Cochin Chickens* were excellent. The greatest struggle was again in *Hamburghs*, and here the star of the Worcester yard paled before Mr. Llewellyn: his *Chickens* are worth taking care of; and so good was the class that nearly every pen was noticed.

The *Single Cocks* formed the third division, as it were, of the Show: of these the *Dorkings* were the weakest. Mr. D. Williams showed a good bird. There was more competition in *Spanish*. Messrs. Crawshay and Carr deserved their prizes. There was good competition in *Game*.

The abundance of water in these parts is no doubt the cause why so many Ducks and Geese are kept. The adult *Geese*, in running condition, average 12 lbs. each, which is a greater weight than we met with formerly; and the *Goslings* average 11 lbs. Mr. Fowler took first and second for Aylesbury *Ducks*, but he was hard run by Mr. Buckley, of Llanelly. Rouen Ducks were very good, and afforded another triumph to Mr. Fowler. Mr. Sainsbury's Buenos Ayrean Ducks were meritorious. All the *Turkeys* were favourable specimens and heavy.

The Workmen showed good, pure, and large birds, the best being *Dorkings* and *Grouse Cochins*. We have great pleasure in noticing the first-prize birds of Messrs. Bowen and Kedart, and those that followed as second-prize takers belonging to the latter exhibitor. Messrs. Pugh and Bowden showed good *Geese*, especially the former. We cannot speak highly of the *Ducks*.

The Committee were as usual active and courteous, and the Secretary, Mr. Harris, indefatigable in his exertions to contribute to the comfort of every one.

Mr. Baily, of London, was the Judge.

THE CANARY AND THE BRITISH FINCHES.

(*Continued from page* 234.)

"Rules and regulations to be subscribed to and observed by the Members of the Society called the Hand-in-Hand, for promoting improvement and beauty in the breed of Fancy Canary birds; held at the Museum Tavern, Museum Street, Bloomsbury.

"Standard Properties.

"1. *Cap*, for colour, magnitude, and regularity.

"2. *Colour*, for richness of yellow, not only in the cap, but throughout the bird.

"3. *Wings* and *tail*, for black home to the quill.

"4. *Spangle*, for distinction, the golden preferable.

"5. *Size*, for largeness and elegance of shape.

"Additional Beauties.

"1. *Pinions*, for magnitude and regularity.

"2. *Swallow-throat*, for largeness.

"3. *Fair-breast*, regular.

"4. *Legs*, for blackness.

"5. *Flue*, for blackness.

"Regulations.

"All votes to be given by ballot or show of hands.

"No bird shall be considered a fair show-bird that has a feather or feathers without black in stalk or web, in the flight or tail-feathers; or that has less than eighteen flying-feathers in each wing, and twelve in the tail.

"A bird without pinions shall be considered (in that respect) preferable to a bird with one pinion only.

"Articles, &c.

"Art. I.—That this Society shall meet on the second Monday in February, at eight o'clock in the evening.

"II.—That this Society consist of a President, Vice-President, Treasurer, Secretary, and as many Stewards as shall be considered necessary, which shall be duly elected the first Meeting night in each year, by a majority of Members then present; first, a President, who shall be elected by ballot or show of hands, and when such President be elected, and taken the chair, he shall propose any Members he may think proper for the remaining offices, until all are filled up.

"III.—That no person be admitted a Member, except by ballot or show of hands at a general Meeting; not less than two-fifths of the Members being present; a majority to decide the admission or rejection. No ballot, for this or any other matter, to take place after eleven o'clock.

"IV.—That no Member shall speak or breed quarrels or disputes of what has been debated and settled by consent of majority, upon a fine, not exceeding 5*s*. for each and every such offence, as no case whatever can be balloted for a second time the same year.

"V.—That the Stewards shall attend the President on all occasions required for the benefit of the Society, and visit such Member as often as may be required, to ascertain whether they strictly adhere to all the articles and rules herein contained; and in case any unfair and improper conduct shall appear to them, that they report the same to the Society at the next Meeting, in order that the person may have an opportunity of clearing himself of the charges alledged against him; the President being hereby empowered to call a Meeting for that or any other purpose, should he think necessary. The Stewards shall also receive and deliver the birds on show-days, and see that each bird has seed and water. Any Steward refusing or neglecting to do any of the duties thereof shall be subject to and pay such fine as shall be determined by majority at the next Meeting after such neglect or refusal.

"VI.—That at the Meeting on the second Monday in February each Member shall make a deposit for his incidental expenses, which shall not exceed 12*s*., and every new Member shall pay the same before he be admitted.

"VII.—That at the Meeting on the second Monday in April every Member shall declare the number of pairs he means to turn up to breed with, and pay for such birds, and shall not afterwards be permitted to turn up any more birds that season without leave from the President; and every pair together in a partition after the closing night shall be considered turned up, although they have no nest, box, or materials for building with.

"VIII.—That at the Meeting in April every Member shall close his subscription for prizes—that is to say, he shall make his subscription 5*s*. for each pair he has turned up to breed with, and the Members then present shall determine the number of prizes; also, what each prize shall be, amounting in the whole to the sum subscribed for that purpose; and the money paid by any Member who does not fully complete and pay his subscription, shall, at this Meeting, become forfeited; and the Members then present are hereby empowered to dispose of such money in such manner as they shall think proper.

"IX.—That no birds be deemed qualified for Members of this Society to breed with, that have not been bred by a subscriber to this or some similar Society, except by such as have not subscribed to a Society of this kind before, who are hereby allowed to breed with the produce of their own birds, not exceeding six; but these birds shall not be considered qualified for any other subscriber at any time whatever.

"X.—That no egg or eggs shall, on any account whatever, be sent out, or taken in, by any Members hereof, nor any clean bird or birds before show-day, under the penalty of expulsion.

"XI.—That if any Member having bred a show-bird or birds shall part with the pair that bred such bird or birds, the first possessor only has a right to show the produce of such pair bred the same season; and that the Members of this Society shall not breed any Gay birds, or Mules, unless every partition used for that purpose is subscribed for.

"XII.—That the Members hereof shall not have more than two hens with a cock at the same time for the purpose of breeding with; such two hens shall be in one partition only.

"XIII.—That no Member be permitted to feed his birds with anything but bread, egg, and Savoy biscuits, all description of seeds, and green meat of every kind. That no marigolds, saffron, or dye, of any kind, be permitted to be used, on any pretence whatever, on pain of expulsion.

"XIV.—That at the Meeting in October every Member shall attend, or inform the President in writing what bird or birds they have to Show; those neglecting to attend, or sending such information to the President, shall pay a fine of 1*s*. for each bird they may have to show. Such fine to be paid before the Stewards receive the bird.

"XV.—That at the Meeting mentioned in the preceding article the Members present shall appoint such Committee as they shall think proper, to determine and adjudge to what birds the prizes shall be given on show-day.

"XVI.—That on show-day, the third Monday in November, the Committee shall go on business at eleven o'clock precisely, and no bird or birds shall be by them received after that time. They shall be guided in all their decisions by the above standard properties, additional beauties, and regulations.

"XVII.—Any Member using abusive language to another shall be fined not exceeding 5*s*. This and all other fines to go to the general fund of the Society.

"XVIII.—That no Member shall show more than one Jonque and one Mealy, which shall be bred by himself only. And if any Member shall obtain a prize contrary to this, or any other rule or article herein contained, he shall, whenever such imposition is discovered, forfeit all claims on this Society, and be expelled for ever.

"XIX.—That the owner of every bird to which a prize is adjudged, shall, previous to his receiving the same, deliver to the President a written declaration, signed with his name, according to the following form:—'I do declare the bird or birds shown by me this day, were bred by me in partitions subscribed for, and from birds duly qualified, and agreeable to the rules and orders of this Society, which I am willing to verify on oath, and to satisfy the Society in any further explanation they may require.'

"XX.—That if any Member shall reflect on, or censure any Committee appointed for inspecting birds on show-day, or any person or persons composing part thereof, on show-day or any other time, they shall be liable to, and pay such fine as a majority shall think proper; and no Member is allowed to breed his birds more than ten miles from the Society house.

"XXI.—That if any Member wilfully deviate from, or refuse to conform to, any of the foregoing rules and orders, although no fine or penalty is mentioned herein for such transgression, the majority may inflict such fine as they may think proper, and the defaulter refusing to pay such a fine not to be permitted to show his birds, or to subscribe again to this Society, unless balloted for as another Member.

"XXII.—That all disputes shall be settled by a majority of Members then and there present.

"D. Horne, *President*,
"5, Thorney Street, Bloomsbury."

Since the establishment of an Annual Exhibition of Canaries and British and Foreign Birds at the Crystal Palace, Sydenham, the London fanciers are becoming aware that there are other varieties of Canaries worth cultivating, and, consequently, find their rules rather arbitrary. Thus, the latter part of Article XI., which enacts, "That the Members of this Society shall not breed any Gay Birds, or Mules, unless every partition used for that purpose is subscribed for," is, I believe, generally disregarded, and the Society now overlooks Members breeding, or tacitly allows them to breed, Mules and other varieties of Canaries without paying the subscription for them as formerly, provided they do not use them as feeders or nurses for the London Fancy birds.

A clause in Article IX. formerly enacted that, "All birds sold to dealers that are not subscribers is illegal," seems to have been previously dispensed with; but I am of opinion that some other clauses require ameliorating or making rather more liberal, which, no doubt, will be the case as fanciers from various parts of the country meet together to discuss the points of their favourite birds.

The following I extract from a little work entitled "The Bird-keeper's Guide." "All prize birds must have eighteen black flying-feathers in each wing, without a white one. This being the number which most birds are supplied with. They must also have every feather in their tail black, amounting to twelve.

"Although these birds when clean moulted off and exhibited for prizes appear like a ball of burnished gold, yet, when in their first or nestling-feathers they resemble a green bird, except their cap and saddle, which are both clean and free from any foul feathers.

"The properties for which the true fanciers breed are as follows:—

"1st. *Property, cap for colour and magnitude.*—From the beak to the back of the neck of a clear orange colour.

"2nd. *Spangled back.*—The ground must be of a rich colour, the feathers edged with black.

"3rd. *Open saddle.*—The feathers on their loins must be free from black, the same colour as the cap.

"4th. *Wings and tail for blackness home to the quill.*—Every feather in wings and tail must be black, without any white ones.

"5th. *Fair breast and regular.*—The whole of their breast must be free from black feathers, of the same tint as cap and saddle.

"These are the main points for which they breed; for although some fanciers enumerate several others, they are now considered trifling and of secondary consideration. This rich and regularly-contrasted plumage adds much to their beauty as well as profit to the breeders."

Ibid.—"If you wish very high-coloured birds, breed Jonque and Jonque. Each bird should have all the properties specified in the before-mentioned articles; but I would recommend a Jonque cock matched with a Mealy hen, or you may transverse them; one should be what is termed strong, the other fine. Strong means those birds with plenty of black; fine, the reverse.

"Although the old ones may be of the best breed, still many of their offspring may be foul. For instance: Either broken-capped, or having one or two white feathers in their wings or tail, either of these defects prevents them from being considered prize birds. These birds are oftentimes very high coloured, and will answer the purpose of those who wish to breed high-coloured birds.

"They are in general considered by gentlemen who breed prize birds as refuse stock, and are in consequence sold off at low prices, and may be bought from 10*s*. to 20*s*. each."

I may be thought to have dwelt rather long on the London Fancy; but as it is a bird to which much attention has been paid, I thought it best to give my readers the benefit of all the information I could gather.—B. P. Brent.

(*To be continued.*)

DECOY COMBS—ABSENCE OF DRONES IN FIRST SWARMS.

Those who are acquainted with the method of keeping bees on the depriving-system well know that sometimes the insects do not take possession of additional room at the sides or tops of their hives, while they more readily do so below. In this case the bees have only to begin, or rather continue, to add more cells to the combs; whereas, in the first two cases, they have to pass over finished combs, especially at the top, and begin to make fresh cells. Pieces of combs are sometimes fixed into the additional to decoy the bees into taking possession; but this plan, though good, sometimes fails even with strong stocks. Lately, however, I have tried bits of combs containing brood, on which the bees readily clustered to protect them, and soon began to repair the damaged cells, and thus commenced comb-building. But though I mention this, I am well aware the plan cannot be of much practical use, owing to the difficulty of getting pieces of brood-combs, which can only be had at the risk of some injury to the hive from which the larvæ are taken. Those, however, who have bar-hives can of course do this more easily and with less injury than by turning up a common hive, and extracting a bit of comb in which there are larvæ. The plan, however, is worth trying when one is anxious to get a bell-glass of honey at the top of a hive into which the bees will not enter.

While on this subject I may notice that there seems to be some doubt respecting there being sometimes no drones in swarms. Some years back I mentioned this to Dr. Bevan, who agreed with me that first swarms sometimes contained no dones; but after ones never left the stocks without them.—J. Wighton.

OUR LETTER BOX.

Lice on Chickens (*Brahma*).—We do not know what description of nests you use, but we can tell you what they should be. They should be on the ground, the bottom should be a sod of grass, and a little straw put on the top of it; a board on each side will serve to keep the eggs in. You will never have vermin in this; but if you use baskets and hay you will inevitably have them. Your chickens died from lice. When one is thus infested immediate relief is given if a little oil be put with the finger on the poll of the head, and under each wing. A dust bath is the cure, but it must be dust—gravel and sand are both too heavy; and with the dust half a pound or a pound of flowers of sulphur should be mixed. The pen will be cleansed from vermin, if the walls and corners are thoroughly and carefully lime-whited.

Canaries (*L. E.*).—I suspect from your description that the bird is a hen, nor does there appear to be anything the matter with it at present. Your treatment seems good, except that I would advise the discontinuance of hemp seed, as well as rape and maw seed, as in the majority of cases they will sooner or later affect the bird's health. Plain diet is best for animals in confinement. The bird spreading its wings, and pecking its mistress's fingers, shows that it is not awed by her presence. I do not know of a book I could recommend on the Canary, but trust the present series in The Cottage Gardener, when complete, may be found acceptable.—B. P. B.

Aviary.—*E. C.* would be obliged by a plan for an aviary to communicate with a conservatory, to accommodate eight pairs of Canaries.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	AUGUST 7th—13th, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
7	Tu	Chenopodiums, several.	29.843—29.725	77—61	S.W.	.21	35 af 4	36 af 7	2 af 9	20	5 27	220
8	W	Atriplex, several.	29.802—29.732	76—54	S.W.	.22	36 4	34 7	19 9	21	5 20	221
9	Th	Sweetia perennis.	29.939—29.926	68—53	N.E.	.19	38 4	32 7	42 9	☾	5 12	222
10	F	Gentiana pneumonanthe.	29.979—29.959	71—54	N.E.	.03	40 4	31 7	12 10	23	5 3	223
11	S	Gentiana campestris, &c.	29.997—29.921	72—47	E.	—	41 4	29 7	54 10	24	4 54	224
12	Sun	10 Sunday after Trinity.	29.993—29.920	77—47	S.W.	—	43 4	27 7	52 11	25	4 44	225
13	M	Athamanta libanotis.	29.991—29.837	79—57	S.W.	—	44 4	25 7	morn.	26	4 33	226

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 75° and 50.9° respectively. The greatest heat, 92°, occurred on the 11th, in 1835; and the lowest cold, 37°, on the 8th, in 1858. During the period 139 days were fine, and on 92 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Trench or dig every spare piece of ground for winter crops. Pay attention to thinning out and surface-stirring amongst all growing crops. *Cabbage*, sow the principal crop for spring use, if not already done. Prick out the plants of a former sowing into nursery-beds, that they may get stocky previous to their final planting. *Chervil*, make a sowing for autumn use. *Endive*, continue to transplant as circumstances may require. Make another sowing. *Lettuce*, sow the Cos and Cabbage sorts for late use. Keep a succession planted. A good supply of water makes them eat crisp and fresh. *Mushrooms*, collect materials for fresh beds. It is best to make rather small beds and often, to insure a constant supply during winter. If a quantity of sheep's or deer's dung can be collected during summer it will be found useful to mix in the winter beds, as it will add both to the quantity and quality of the supply. *Potatoes*, the Ashleaf Kidney intended for seed to be taken up and exposed to the sun until they are green. *Scarlet Runners*, stick the late crops in good time. *Savoys*, make a good-sized plantation for late autumn use. *Spinach*, sow the Prickly or Flanders sort for winter supply. Choose a dry and open piece of ground; the beds to be four feet wide, to be raised one foot above the level of the surrounding ground, with a bold curvature; the seed to be sown in drills. *Turnips*, make another sowing. *Winter Onions*, sow thick, for drawing young for salads and transplanting; the Tripoli and Strasburg are the best. Whatever remains undone in the way of planting out *Broccoli* and *Winter Greens* must be concluded without delay.

FLOWER GARDEN.

Take off the rooted offsets of *Auriculas* very carefully, and plant them round the sides of the pots, and then to be placed in the shade. Finish layering *Carnations* and *Picotees* as speedily as possible. Plant out the *Pink pipings* as soon as they are rooted. Collect *annual seeds* as they ripen. Pick off the seed-pods from the Belgian or hardy *Azaleas* and from the *Rhododendrons*, which will add strength to the blossoms in the next year. Cut off *dead blooms* of Roses, and keep all plants that require neatly tied up. The *Dahlias* to be supported with strong stakes, and the lower ties to be frequently looked to. Cut down the stems of *herbaceous plants* that are past blooming. Trim *evergreens* that require it.

FRUIT GARDEN.

Keep the shoots of Apricots, Plums, &c., closely tacked in to the wall, and afford the fruit as free exposure to sun and air as possible, without removing or in any way interfering with the free action of the leaves. Do not neglect the early formation of Strawberry-beds. But if the ground for the final planting is not ready, and that other more pressing operations will cause postponement, it is advisable to prick out the runners into nursery-beds, from whence they can be transferred in a better condition to their final quarters than if they had been allowed to remain in a crowded state attached to the parent plant. Dig down the exhausted plantations, and plant the ground with winter stuff.

STOVE.

Diminish gradually the supply of water to the plants finishing their growth, and withhold water altogether from the plants that have finished their growth; such plants to be placed in the coldest and driest end of the house, where there is no other more suitable place to be found. Air to be given at all opportunities. As less water and no shading will be required while gloomy weather continues, it is better to apply gentle fires with plenty of air night and day than to finish the season with immature growth. Successions of Brugmansias, Clerodendrons, Euphorbias, Poinsettias, to receive a last shift directly, to provide a rich autumn display. Climbers on ornamental trellises to be occasionally cut back, to have a succession late in the season when flowers become scarce. A batch of such things as Thunbergias, Ipomœas, Pergularias, Jasminums, Stephanotis, Passifloras, &c., to be trained up ornamental trellises without delay.

GREENHOUSE AND CONSERVATORY.

Look well after winter-flowering things—such as Cinerarias, Chinese Primroses, Verbenas, Scarlet Geraniums, Heliotropes, Roses, &c. Pelargoniums that have been cut back, and started into fresh growth, to be shaken out, and to be repotted into smaller sized pots, trimming off straggling roots; to be placed for a short time in a pit or frame under glass, and shaded from bright sunshine, if favoured with any this season. Gather and sow the seed of Pelargoniums as soon as ripe, as also of Calceolarias and other such like greenhouse plants.

PITS AND FRAMES.

A brisk heat from the linings and coverings on cold damp nights will be required to keep the Cucumbers and Melons free from disease. Melon plants, on which the fruit is ripening, to be kept dry at the root; but when water is absolutely necessary, sufficient to be given to moisten the whole mass of soil, and to be freely exposed to air on fine days. Keep a watchful eye on the foliage, to prevent red spider from establishing itself there.

W. Keane.

VERBENAS AND OTHER BEDDING PLANTS. CROSSING HEATHS.

A commentary written for the weekly press, like a pup, is some days old before it sees daylight. This is written on the 1st of August, and on the morrow the Floral Committee are to meet at Chiswick Garden, to see the contributions to the Experimental there, and to decide on the best in each class and colour; and, if you believe me, I have very little hopes of any great good or benefit to gardening this year from an examination of all the plants and seedlings in the three kingdoms, supposing we had them all planted out before us in Chiswick, and I write to say so from experience. I have seen nothing yet this

season round London, like a naturally vigorous or healthy-looking bedding plant out of doors, and I was told by his highness, our highest cross-breeder, that "nothing did grow," under glass, down in the country.

Let us take the Verbenas first. I was anxious in the spring to make the arrangement of them in planting, as it is done in print in The Cottage Gardener, in so many sections, and such and such numbers out of each section. Also, in the same consecutive order as they are printed, for that is the right foundation of judging all kinds of plants of which there are more than three kinds of different colours. Well, as usual, the nurseries came to my help, or rather sent handsome contributions to make up my arrangement; and I got up fifteen of the twenty or twenty-two sections into which Verbenas have now branched, and a considerable number of odds and ends of kinds; also, some seedlings not yet proved; and out of them all, as far as I can judge from present appearances, I shall not be able to advance one inch or more this season in our knowledge of the family. And I want to record this before I see my rivals to-morrow in their new efforts for the Horticultural Society in the Chiswick Experimental. I have two good reasons for this; the first is, the awful pulling at the ears which the conditions of the Verbenas all over this part of the kingdom will occasion to many a good gardener, who will have all the blame for what no mortal can or could guard against. There is no one to blame in the matter: we are all in the same boat, and our pride ought thus to be lowered from time to time, as, of all the people of the world, those in the flower gardens of this country are most apt to forget that the whole praise is not due to them and to them alone. But to go and blame and turn your gardener adrift because he could not fight against Nature, is, perhaps, the greatest folly of all our blindness of heart.

The second reason shows the folly I have just been railing against in my own self. My pride of heart would never allow me to plough with another man's heifer, much less with the milk cows of the Horticultural Society; and, although I willingly and with heart and hand joined the Floricultural Committee, it was not for the purpose of making bread and cheese out of our proceedings. We all pay our own expenses, our Society is not yet out of the bog, or able to spend one farthing more than they can help; and it would look just as bad for me to write about all our doings, and thus suck the goodness out of the reports of our doings before they are sent into the world by the Society in their own "Proceedings." I say it would look as paltry as for a man or woman to blame a good gardener, or all gardeners, for the effects of a bad season, of which none of us yet know the full consequences. Everything is down with me but my credit, owing to the effects of this season on my seedlings. They will not grow, and I cannot make them, neither can I get rid of my gardener, for I am my own man.

Talk about crossing, indeed! and I shall tell you a secret. I once knew a gentleman, a great patron of gardening, and he was of a hasty temper. His gardener knew the exact degree at which the heat of his master's blood stood by the time he (the master) spent with the bees of a morning before they met each other. The gardener had pluck and patience; but he, too, could be put up to the boiling-point; and he knew it, and strived against it. And the best remedy he ever found to cool and quiet him was to cross some flower or another; and the more intricate he found the parts, the more effectual and speedy the remedy. And it is more likely than not that, like our Mrs. Grundy, every one of us has his own or her favourite pursuit for reducing the heat of the blood at times down to "temperate;" and if so, there never was more need of indulging in that exercise than there is and will be this season. Let us all do it and be thankful.

But talking about crosses and cross-breeding brings the pleasant kind of grumbling to one's mind—such as "D. C. M." puts on record in the last number of The Cottage Gardener, page 271. People wondered how on earth I could get fat on grumbling, but nothing feeds faster or more sure when one knows how to chew it—there is where the only secret lies. Suppose, for instance, that I had to look over every volume and page of The Cottage Gardener the day I am writing this, in order to make out a list of all the bedding Geraniums, Verbenas, Calceolarias, and the rest of the bed and border plants of this stud book, in order to refresh the memory, and be sure that no old thing should pass as new on the morrow before the Floral Committee. Suppose, also, this to be the last day in the week on which I could write this article, so as to make sure of its looking spicy in print. Which of the two should you suppose must go to the wall?—and no mortal could read twenty volumes of The Cottage Gardener, and think and write one, two, or three columns of matter in one day. Now, a nice feed of grumbling would be just the very thing for a day like this. Instead of making faces at it, down with it as fast as one can get it off the pen; and by the time your space is full you would feel as comfortable as I shall do when all this is down.

"D. C. M." is a godsend, as it happens; and if godsends like him would come every such day, and fill as much as he will, why one's nose would soon get too flat and full for the spectacles.

"D. C. M." asks the reason why there are not as many hardy cross-bred Heaths between natives and foreign kinds as there are hardy Rhododendrons between hardy and exotic kinds. The reason why that has not been done is exactly the same as the reason why *Tom Thumb* was so much less than *Barnum*. Can "D. C. M." tell why *Barnum* was the bigger of the two? No. And none can tell him why Cape Heaths do not cross with our natives. We know only the fact; the reason for it is beyond our apprehension. But native Heaths will not cross among themselves except to a very limited extent, while there is hardly a limit to the power for interbreeding among the Cape kinds. The Cape Heaths were among the very first plants that were crossed in England; and scores of kinds are down in our best books and catalogues as species from the Cape, and were ushered into the world as such, while in reality they were merely English cross-bred seedlings; and many of the best Heaths in cultivation have had that origin and none other.

But it may be worth while for "D. C. M." to know the reason why Rhododendrons, Azaleas, and Rhodoras are not increased by budding as fast as Roses are. The reason is, that the bark of Rhododendrons is so much thinner and the growth more slow for budding than in the Roses; for the one will bud just as well as the other, and just as long in the season, or say from the 1st of June to the last of September. As far back as the year 1843 I put it on record that "how" a friend of mine down at Newcastle had one day met a friend, a lady, going out into the garden, or out of the garden, with a handful of new Rhododendron shoots, which she was going to bud on the top shoots of the old plants of older kinds; and she expressed astonishment that a great gun like him at gardening should not know how easy it was to change the face of a shrubbery of Rhododendrons as she was changing that of her father's garden by degrees, and as fast as she could procure suitable kinds to work on the old ones.

The next turn may be grumbled at or not, as far as feeding goes; but Rhododendrons have been so fed and overfed this season, that if we should have a fine, warm autumn, as no doubt we shall, hundreds of them will push past the flower-buds, for next, and run them up to wood growth instead, making two fair chances against blooming next year—first, in running into autumn wood; and, secondly, in the chance of frost hurting the unripened wood. If I had an acre of hybrid Rhododen-

drons, and such kinds as are likely to run that way, I would have them all up now, and pare off their balls till I made sure of giving them an effectual check to stop their pride at any rate, for the rest of the season.

In the midst of all this grumbling I had another feed on new Geraniums and new Dianthuses. New kinds, at any rate, should not be influenced by any style of weather or wind of doctrine according to this way of feeding. But we had a splendid dish of the new Dianthuses before us, from the Wellington Road Nursery at the last meeting of the Floral Committee, and the Doctor happened to call in just as we sat down to it, and he was as much satisfied as the rest of us—in short, we were unanimous on the merits of the dish; and were it not that our rules apply not to "made dishes," or broken victuals in any shape (I mean cut flowers or cut branches with flowers on), we should have given a first-rate prize with one consent to these Dianthuses which consisted of *Heddewigii*, and half a dozen kinds of *laciniatus*. The beauty of these Dianthuses consists in the singleness of the flowers, and in the singleness of purpose for which they were made: you cannot bed them more than Cloves and Sweet Williams, which are not bedding plants, although some people plant them in beds and masses. Even when we shall have them with double flowers, as they are already promised, we must plant them in single file, or in single patches among the rest on the mixed border.

There is a double *Dianthus hybridus* something in some nurseries. I saw it in the Kingston Nursery, it is as tall as a Sweet William, and very much in the looks of the very old dwarf "Mule Pink," and is well worth inquiring after. There was a large bunch of it shown at this Meeting from the Doctor's garden, and we certainly commended it; but as it is not in the report at page 275, I suppose it could not have been shown for that purpose. Three years since, or may be four, some one whose name escapes me just now, sent a most desirable single Dianthus to the Experimental Garden, the best pot plant of the whole family, and quite as hardy and easy to manage as a Sweet William. It looks like the single form of this double one from the Doctor, and it ought to be out in the world, most certainly; but my rule is not to part with anything that is sent to the Experimental without the consent of the sender; therefore, it is as well as lost in my hands, and I have no memorandum of it, or know where to apply for permission to part with it. I should like to send a plant of it to the Doctor, and to the Experimental at Chiswick. Also, if any one could tell me the reason why it will not seed, I should be wiser than any of us, and I would tell a story in return in the same line, which would make some people wiser than Solomon about crossing flowers.

If you recollect, I wrote about a new Tropæolum of the Lobbianum breed, called *Brilliant*, three years back, a fine, healthy, free-blooming climber; but out of doors it would not come into bloom till late in August, and we gave it up on that account. It was sent to me in a collection of them by Mr. Henderson, of Pine Apple Place Nursery. A month or two later Mr. Melville sent up other seedlings from Edinburgh, but of the old Nasturtium breed, and one of them he called *Brilliant*, and he was advised to cancel that name as being pre-occupied. I never saw Mr. Melville's plant in growth, but this summer I have seen a third *Brilliant* Tropæolum, which is from Hamburgh, and is, like the rest, a rich, deep crimson, large bloomer, and of the Nasturtium breed. This is well worth having for running over arbours and rustic works. I am indebted for a sight of it, and of a fourth *Brilliant*, an orange-coloured flower, to the Messrs. Parker & Williams, who grow it extensively for sale. This is not the usual run of such things: we often have more names than enough for one kind of plant until it settles down to one of them. But here we have had four kinds of plants, seedlings of the same family, under one name—Brilliant; and the Hamburgh one is the best of them for scrambling over everything after the fashion of the old Nasturtiums, than which we have no more appropriate edging yet to a large bed of Scarlet Geraniums, only that one of twenty can hardly manage such an edging.

Tropæolum elegans is better with us hereabouts than I ever saw it; and the Variegated Alyssum has seeded at last at the Rectory garden at Surbiton on a very heavy clay border, where it grew last year in single patches or plants two feet across, just in its natural way without any trimming. The heat in 1859 was something to talk about; that heat forced five or six of these patches to make and ripen each a few seeds, and these seedlings have not been disturbed from first to last, and they are now in bloom. In 1846, another very hot season, I seeded the same plant at Shrubland Park, but, very stupidly, did not save the seedlings to prove the fact; but here they are, and will be to the end of the season; and if any skilful botanist could make out any difference or distinction between them and the common Sweet Alyssum I would undertake to cross them. What is to become of *Königa maritima* now? Cross it with Variegated Alyssum, to be sure, and there is a cross for you at once between two genera! D. Beaton.

GREENHOUSE ORCHIDS.

There are many lovers of plants that would very much like to grow Orchids, but object to them because the notion is presented to their minds that they all require a great heat and peculiar treatment very difficult to understand and put into practice. It is quite true that Orchids from the West and East Indies, or at least the greater part of them, will not thrive well without a high temperature well saturated with moisture when growing; but it is no less equally true that there are a considerable number from more temperate climes that will thrive well in an ordinary greenhouse—that is, in a temperature averaging in winter from 40° to 45°, and in summer from 55° to 65°—a temperature easily attained during the last-named season without any artificial heat whatever.

Any amateur, then, in possession of a greenhouse may, without any doubt of success, begin to collect and cultivate these most singular and beautiful plants; and in order that such cultivators may have some idea how to proceed, I have thought it advisable to write a few papers on their culture, and shall give a list of the species that will bear what I call a greenhouse treatment. The readers of The Cottage Gardener from its commencement are aware, no doubt, that I have written largely on the culture of the Indian species, and as my remarks on that subject have met with general approbation, I trust the following will also be acceptable, and lead many to try to grow Orchids of a more temperate climate.

In order to be better understood, I shall describe the right kind of house for them, then the soils they require, then potting, putting some on blocks, others in baskets, watering, summer treatment, winter treatment, insects; and, lastly, an alphabetical list of genera in groups that I know will grow in such a house.

The House.—Any one having a common greenhouse may begin to collect a few species and grow them amongst the ordinary plants—such as Camellias, Azaleas, Pelargoniums, and New Holland plants; but when the collection has become extensive, then I would recommend them to be cultivated in a house of the same temperature, entirely by themselves. The best cultivators who have the means, always grow every large tribe of plants separately—such, for instance, as Heaths, Roses, Camellias, &c., and thus succeed much better than by mixing them indiscriminately together. This is a good method, and holds true also about Orchids from mild climates. Therefore, I recommend a house devoted to them alone where it is convenient or possible. The form of the house does not much signify, though in order to thoroughly enjoy every plant, a span-roof is the most suitable form. I would let it run from east to west, so that the one side will have all the morning sun, and the other all the afternoon sun. Glass sides are not indispensable, provided the angle is rather sharp—say 33° or 35°. A flattish roof is objectionable on account of drip. A stage of corresponding form to the roof should be in the centre, and a broad shelf next the front will be

useful for low-growing plants, or for such that are deciduous. This shelf will be a suitable habitation when they are at rest. The house may either be heated with an ordinary flue covered in with dished tiles or flags, or, with what is better, hot-water pipes, with troughs to hold water fixed upon them.

Contrivances for giving air should be provided abundantly, both for letting in large supplies of fresh air, and for letting the over-heated air escape out at the highest part of the roof. That part may be made with a board a foot or more broad. At intervals of a foot apart, the board should be cut into long squares, and each of these hinged at one side, and a rack at the other. A long iron rod connected by a lever with each of those hinged pieces, should be so contrived as to turn round by a wheel and pinion at one end. By turning this each hinged piece will rise and thus give air and let out the heated air when necessary. To admit fresh air at the bottom or lower part of the house, I have always found sliding panels in the wall the most convenient. These are made by first fixing a frame of wood in the bricks, and allowing it to project out sufficiently to allow the panel or shutter to slide in a groove cut in the frame outside the wall. The openings in the wall opposite the panels should be level with the pipes or flue. The air then becomes warm in passing over the heated surface, and is more beneficial to the plants. These contrivances of course apply to a house devoted entirely to temperate-loving Orchids, and approximating means should be adopted where possible to a greenhouse where other kinds of plants besides Orchids are grown. In such a house Orchids will do well, if every other point of culture is properly attended to.

Soil.—There are two classes of Orchids distinguished by the terms *epiphytal* and *terrestrial*—that is, the first class grows on trees, and the second in the ground.

Epiphytal Orchids require a compost of moss, fibry peat, charcoal, and broken pots. The best sort of moss is sphagnum, a white kind that grows in swampy places. Fibry peat may be got from a dry common where Heath and the common Brake abound. The moss should be chopped small, and the peat broken into small pieces, and the fine particles sifted out; what remains in the sieve is that which must be used for Orchids. The moss and peat in equal parts, two of each, and one of broken charcoal, and one of broken pots, the whole well mixed together in a moderately dry state.

For ground or terrestrial Orchids, chalky loam, sandy peat, and leaf mould, in equal parts, are a good compost, though some thrive well in strong loam; and for others an addition of caky, dry cowdung should be used. In my list, I shall mention such as require these peculiar soils. The different materials for the various composts ought to be obtained in the summer months, and laid up ready for use in some place sheltered from excessive rains.

Potting.—The season for this operation is later than for stove Orchids, because they do not start so early into growth. That is the criterion to guide the cultivator. He must observe when the plants are beginning to grow and then pot them. A wide rather shallow pot for epiphytal Orchids is the best, and if ordered at the pottery costs no more than an ordinary pot. For ground Orchids, the common-shaped pot is the best. If old pots are used they should be scrubbed quite clean, and allowed to become dry before using. New pots fresh from the pottery should be put into water for an hour or two, then allowed to become dry before using. For Orchids that grow on trees, the pots should be thoroughly drained with broken pots. In fact, the pots should be half filled with drainage. Over the drainage place a layer of moss and charcoal. Let the size of the pots be in proportion to the size of the plants. Having got ready the pot, then take the plant and turn it out of its pot, and pick away all the old stuff and drainage. If it does not come out easily, it is very likely prevented doing so by the roots adhering to the side. If so, pass a thin, long-bladed knife carefully between the root and the pot. If that cannot be done without injuring the root, then break the pot in pieces very gently, and such pieces of the pot as hold the roots let them remain so, and put them altogether into the new pot. Hold the plant in one hand and work in the fresh compost with the other. Let the centre of the compost be raised a little above the rim of the fresh pot, so that the plant will stand as it were on a little hillock. Most likely it will be rather loose in the compost at first; and, therefore, to keep it steady, put in some short sticks close to the pseudo-bulbs.

The potting season is a good time to cleanse the leaves of the plants, and to clear off any scaly insects that may be on the leaves and pseudo-bulbs. The best implement for this purpose is a piece of thickish soft leather tied to a stick. This, when used, does not injure the tenderest leaves.

Proceed thus with every plant till all that are beginning to grow are finished. Then with a syringe wet the compost by forcing the water on it strongly, which will press down the compost, rendering the surface compact and smooth.

T. Appleby.

(*To be continued.*)

PELARGONIUMS IN POTS.

(*Continued from page* 275.)

In *draining*, place the first crock, or oyster-shell, with the convex side over the hole in the bottom of the pot, which will so far guard against worms. Above that there should be three-quarters of an inch deep of drainage in a 48-sized pot, and more in proportion to size, the drainage being placed as loosely as possible, and with a layer of green moss, and a sprinkling of soot over it. A little of the roughest soil being placed over that, the pot is now ready. The plant is now turned out of its pot, and the soil about the roots being, as we have seen, rather dry, it crumbles easily from the roots when the ball is broken carefully through the fingers. Some prefer leaving a portion of the old soil about the roots; but in general I like to clear the whole of it away. The roots are then examined:—if any are decayed or unhealthy they are cut away; if any are excessively long or straggling they are shortened; but, in general, when they are nice and fresh, and well at home, I leave them untouched, though at times I have pruned them back to within six or nine inches or so of the collar, and the plants did well. I must here mention a little matter that may be of importance to amateurs. Sometimes their plants make gross, gouty, unequal shoots after this repotting, because they *will* water them so. Well, to guard against this, I would recommend them to dip the disearthed roots of half a dozen or so plants at a time in water at about 60° for ten minutes, and take them out and let them drain a little before potting them. In most cases, the first or second size less will be the most suitable pot for this potting. For instance, if the plant was in a 16-pot, transfer it, according to the health and vigour of its roots, to a 24 or a 32. Be careful that the collar of the plant—the point whence roots and stem proceed—is not sunk deeper than before, and that the roots are so spread out as to be packed nicely all through the soil, put rather firmly about them. Place the plants now, if possible, under glass, keep rather close during the day, shade for a few hours if the sun is bright, and when thus shaded sprinkle the tops very slightly from the syringe, making the syringing a sort of misting. Another such syringing may be given in the afternoon, after a warm day, and the glass being shut down will encourage rapid growth; but air must be given back and front at night, to prevent the shoots spindling. If the roots are dipped as above, and these very gentle sprinklings over head, no water will be wanted at the roots for a number of days—not until fresh roots are making their way into the new soil. Then gradually give more air and free exposure to sunshine; and if during September and the first part of October, the weather is fine, the plants would be better if fully exposed. In changeable, rainy weather, it would be best to have the lights over them, and with the sashes elevated three or four inches, back and front, that there may be no confined atmosphere about them, which, except in the case referred to, the whole tribe abominate. Where a pit or frame cannot be had for such a purpose, a few moveable lights are extremely useful, which can be supported on a rail back and front. When frames are used at this period, the plants will be benefited by the frame being elevated on bricks at the corners, so that the air may pass at will at the bottom, as well as by the sashes at the top.

Winter Management.—By the middle of October it would be desirable to house the plants where, by means of fire heat, they could have an average night temperature of 45°, and abundance of air during the day. The slower the plants grow on this side of Christmas the better they will bloom in May and onwards. In cold, frosty weather, we would let the plants get from 5° to 8° lower than the above, in preference to giving them much fire heat. In very severe weather neutralise the drying of the atmosphere by slightly dewing the plants, and sprinkling the shelves and floors. In dull, muggy weather, though rather warm, light a brisk fire chiefly during the day, to dry the air and keep it in brisk motion. Let cleanliness be thoroughly attended to; allow neither pots, nor soil, nor leaves,

to be encrusted with filth. If insects now get a-head, farewell to all satisfaction afterwards. During these winter months the plants will always suffer more from moisture than from dryness. Even the leaves must not be damp long, or you may lay your account with spot and other evils. Do not hurry the plants at this season. I have seen fine plants in June that had scarcely a leaf larger than a shilling in the previous December. In fact, other matters being equal, fine flowering in summer will almost be in proportion to little growth in the first part of winter. Keep the plants, if possible, on shelves and in houses, in preference to pits, unless the latter are span-roofed.

Potting for Flowering.—Keep in mind that in general, bulk for bulk, a small pot will produce more bloom than a large one. The plants will throw up the finest trusses when the roots are pressing against the sides of the pot. When, therefore, I have wanted bloom very early, I have kept the plants in the pots they received in autumn, and fed them now and then with manure water after the new year, and always, when they could take it, as soon as they began to knot for bloom. A moderate shift, however, will not interfere with flowering, and will give a greater degree of luxuriance. For this purpose we use the richer compost recommended. In January the most forward plants should be selected, another batch in the middle of February, and a third in the first or second week in March. These may be expected to bloom successively in May, June, and July. Cuttings struck the previous summer and autumn, topped and repotted in spring, will make nice, stubby, little, flowering plants in August and September. When thus repotted, the plants should be kept closer and warmer to encourage fresh rooting. At this potting the ball is left entire, with the exception of removing a little of the drainage and disengaging the roots at the sides of the ball. As the sun gains power the soil will need more water, care must be taken to have the leaves dry in sunshine, and, in fact, to prevent moisture hanging on them for any length of time.

Training is now a matter of moment. A few shoots may threaten to starve the rest by taking more than their proper share. These must be stopped, and when diverted into two new shoots instead of one, the strength will be equalised. Where two or more buds were left on a spur, some may be extra weak, and should be removed if they can be spared. Preserve no more than will have room to grow regularly. In small plants in 32's or 24's, if the lower tier is fastened to the rim of the pot, and a centre stake in the centre, all the shoots may be kept in their place, with a little hasping with threads if the plant is for home decoration. If for an exhibition table, each shoot must be supported, but the sticks should be hid as much as possible. For larger plants it is good to have a light, circular frame of wood or wire, extending as far as necessary beyond the pot and fastened over its rim. This dispenses with many sticks in the soil and among the roots.

Blooming.—After the roots are working freely in the fresh soil, plenty of air must be given according to the weather, but so as to give no check to the plants from sudden falls of temperature. Little or no air is better than letting in a drying, cold east wind. In unfavourable weather a very little at the top of the house will prevent stagnation. Too much cannot be given in fine mild weather. As soon as the flower-buds begin to appear, use weak manure water almost constantly. If given earlier it would increase too much the size of the foliage. Remove and thin out leaves at times, when there is not room for them to get light. As the flowers open shade from bright sunshine; and if you wish to preserve them long, not only keep the house cool, but also bee and fly-proof by means of gauze over the air openings.

Propagation.—The most suitable time is after pruning the old plants. Every bud or joint of the shoots removed may be transformed into a young plant. Unless with scarce and valuable kinds this is not required, and, in general, we are satisfied with making a cutting out of every two joints. A sharp knife goes right across the centre of the lower joint, and that forms the bottom of the cutting. An oblique cutting upwards is made above the next joint, and the seen or unseen bud there forms the head of the future plant. It matters not whether the cuttings have leaves or not:—with them, they may root faster if carefully attended to; without them, they will root as safely and require less trouble. Cuttings may have three or more of these buds instead of the one at the top. In July and August all such hard cuttings will strike as well in a little sandy soil in the open air as anywhere else. Of course, they will also strike nicely under glass, with two or three cuttings in a small pot. Such hard cuttings are capital for transmitting by post. Young succulent shoots may be struck at any time in the usual way under glass. Cuttings should be selected that are short-jointed.

Diseases and Insects.—I say nothing of rotten, decaying, and yellow leaves, for these are the attendants of slovenliness. The two worst diseases are mildew and the spot. The first is generally the consequence of a stagnant atmosphere, in dull muggy weather, whilst the soil is saturated with moisture. The remedies are obvious, and will be assisted by putting a little sulphur in the heating medium, when that is never hotter than 150°. Spot I believe to be the consequence of too much moisture at the roots in unison with a low temperature, and to the leaves in winter and spring being frequently damp for want of heat and a circulation of air. The remedy here is also obvious. The worst insects are green fly and thrips; and when taken early the best remedy is smoking with good shag tobacco, taking care that the smoke reaches the plants in a cool state. Smoke whenever a single insect is seen—it is money thrown away to do it several days afterwards. After smoking, shade from bright sun for a day or two.

FRENCH FANCY PELARGONIUMS.

The characteristics of these, so blotched, spotted, and mottled, are undefinable; but, though so puzzling to the florist, are very interesting either for their beauty or their singularity. The beauty is often enhanced as in form they approach the florist's standard. All that has been said above will be applicable to this section, with the exception that some weak-habited kinds would not dislike a little more sand and a little heath mould.

FLORISTS' FANCY PELARGONIUMS.

Characteristics.—These are different somewhat from the larger varieties. In form the flower should be round and flat, not cupped, as in the former. Each of the five petals should be similar in size, thick, and even and regular on the edges. The ground colour should be clear and distinct, and the border colour clear, light, and well defined. The two upper petals must be exactly alike, and the three lower petals alike. If there is feathering in addition to spots, that must be clear and distinct, not run or mottled. Each truss should be compact, and have fine blooms with room for all to expand, and not to straggle. The habit of the whole plant should be compact, and the foliage small in proportion to the larger kinds. Great abundance of bloom-buds and continuous blooming for a long period are also necessary qualities.

The general culture of these is much the same as for the larger kinds. I will here just indicate the chief points of difference. Being less succulent, the plants must not get so dry in winter, though they hate anything like over-watering or water-logging. A cold, stationary atmosphere is their peculiar abhorrence. The temperature should seldom sink much below 45°. In summer they will not want so much water as the larger kinds; but when either of them is allowed to get over dry, they will tell you how they like it by allowing a layer of their lowest leaves to become yellow. When set out of doors in summer, the plants must not be allowed to get too dry.

In pruning, if the plants are young, it is as well not to spur back so close. They like best being kept under glass afterwards. The soil used should have more sand and leaf mould, and in tender kinds a little heath soil will be prized. The plants will thrive in smaller pots than the larger ones. A 32 or a 24 will grow a good-sized specimen. Cuttings made from the summer prunings will do best when placed under glass at once in very sandy loam, and one cutting in a small pot is the best for pot culture. Not but the strongest kinds will strike in the open border in July and August; but for all the general, compact varieties, they will do better under a handlight, or below a frame, or shaded behind some largish pots in the greenhouse. In training, more care will be requisite in thinning and regulating the shoots, and thinning the foliage, when too thick. They are well worth the extra attention.

Forcing.—None of these sections force well. True, you may grow the plants as vigorously as you like, and get splendid foliage; but the blooms always suffer when the plants are deprived of an airy, coolish atmosphere. Such kinds as *Alba multiflora*, *Blanchfleur*, *Admiral Napier*, and *Dennis' Alma*, come very early with a few degrees rise in the temperature.

SCARLET PELARGONIUMS.

From large *Defiance* to little *Baron Hugel* many make nice pot plants, and are extra accommodating; so that, if desired, they may be had in flower almost constantly. All thrive admirably in

rich sandy loam. In winter old plants will be kept safely at from 35° and upwards, and young-struck plants from that to 40° and higher; but so accommodating are they, that, provided you give heat and light in proportion, they will not find fault with the temperature that would suit a Pine Apple. Old plants generally bloom most freely; and the same plant, if well supplied with manure water, will bloom during most of the summer. These may be pruned a little in autumn, and rested in winter by giving no more water than will keep the stems from shrivelling. These, repotted or top-dressed in spring, will bloom brilliantly in summer. We have had large plants seven years in the same pots: the surface soil was scraped off in spring, rich top-dressing given, and manure waterings after the buds began to come, and nothing could be more gay. Young plants potted in spring, kept first in a cold pit, potted again and placed out of doors in summer, all flowers nipped off, and housed in September, will bloom nicely during the end of autumn and the first months of winter in a temperature of from 45° to 50°, and an atmosphere dryish rather than otherwise. Another lot put into a forcing-house, with from 5° to 10° more heat, and plenty of air given, will succeed these, and keep on until the arrival of the spring and summer bloomers. With moderate forcing the blooms will not be at all injured. When grown out of doors it is only in bright warm weather that these scarlets put on their best livery. Propagation may go on by cuttings in the open border from June to September; before and after that they are best under glass. All Pink varieties may be treated the same. The *Compactums*, to be kept compact, like the soil more loamy for large plants. The whole section of Nosegays, with their elegant, open, large trusses of airy blossoms, may be treated the same when in a young state, but when placed in blooming-pots, owing to the distance between the joints, in such kinds as the old *Fothergillii*, pink Nosegay, and the reddish-purple *Mrs. Vernon*, the chief portion of the compost should be poorish loam, with just a little pure sand. The poverty of the soil helps to keep the plant compact; and extra strength to bloom is easily communicated by manure waterings. The *Stellates*, and minimums, as *Dandy*, we would treat with more leaf mould and sand; but the latter we consider more at home in geometrical flower gardens than in pots as ornaments in a house. We would substitute for them nice plants of variegated Scarlets, as *Alma*, *Perfection*, *Flower of the Day*, *Bijou*, &c., and the yellow *Golden Chain*. To all these we would add a little peat and a portion of rotten cowdung to the compost.

All the Ivy-leaved will thrive in rich sandy loam; and if kept in a temperature from 45° to 55° in winter, they will bloom almost continuously. All the free trailing kinds look best, with their shoots suspended over vases or hanging from a basket. Such sweet kinds as *Citriodora* and *Prince of Orange*, and almost-continuous bloomers like *Rouge et Noir* and the varieties of *Rollissons' Unique*, are best raised by cuttings in the spring and in a slight hotbed; otherwise the general treatment will suit them. White-Scarlets, as *Hendersonii*, *Boule de Niege*, *Mrs. Turner*, &c., may be treated much the same as Nosegays—in fact, *Hendersonii* is a Nosegay. R. Fish.

CUTTING DOWN DELPHINIUM FORMOSUM.

Having many plants, I cut some down when about nine or ten inches high, to make a later bloom, and they are at the present time in full bloom, and about eighteen inches high. They were sown in May last year in the open ground, and pricked out in a bed about six inches asunder. Having taken the plants I wanted this spring, what were left I cut down as stated. Some of the plants not cut down have grown about four feet high, and a few with the main spike about twelve inches long, and many branches down the stem.—Edward Wells, *Sheffield*.

THE SCIENCE OF GARDENING.

(*Continued from page* 272.)

Cross-breeding, aided by cultivation, gives birth to those splendid objects of the gardener's care, generally designated *double flowers*, which are such beauteous ornaments of our borders and parterres. To the uninitiated it seems incredible that the double Moss Rose should be a legitimate descendant from the Briar; neither do the flowers of the Fair Maid of France appear less impossible derivatives from those of the *Ranunculus platanifolius*; nor Bachelor's Buttons from the common Buttercup, yet so they are. Double flowers, as they are popularly called, are more correctly discriminated as the full flower, the multiplicate flower, and the proliferous flower.

The full flower is a flower with its petals augmented in number by the total transformation into them of its stamens and its pistils. One-petalled flowers rarely undergo this metamorphosis; but it is very common in those having many petals, as in the Carnation, Ranunculus, Rose, and Poppy. But this is not the only mode in which a flower becomes full; for, in the Columbine (*Aquilegia*), it is effected in three different ways—viz., by the multiplication of the petals to the exclusion of the nectaries; by the multiplication of the nectaries to the exclusion of the petals; and by the multiplication of the nectaries whilst the usual petals remain. Radiated flowers—such as the Sunflower, Dahlia, Anthemis, and others—become full by the multiplication of the florets of their rays to the exclusion of the florets of their disks. On the contrary, various species of the Daisy, Matricaria, &c., become full by the multiplication of the florets of the disks.

The multiplicate flower has its petals increased by the conversion of a portion of its stamens, or of its calyx, into those forms. It occurs most frequently in polypetalous flowers. Linnæus gives the only instances we know of the conversion of the calyx into petals, and these are to be observed in the Pink (*Dianthus caryophyllus*), and a few of the Alpine Grasses.

A proliferous flower has another flower, or a shoot produced from it. This is most strikingly exemplified by that variety of Daisy popularly known as the Hen-and-chickens. It occurs also more rarely in the Ranunculus, Pink, Marigold, and Hawkweed. A leafy shoot often appears in the bosom of the double-blossomed Cherry, Anemone, and Rose.

The influences regulating the production and development of leaves and flowers are these:—If an excess of water to the roots, or too little light to the superior parts of plants be applied, they produce an increased surface of leaf, and few or no flowers; for it is a wise power given to them by their Creator that those parts shall increase in size, which circumstances render most necessary. An excess of moisture requires an increased transpiratory surface, as in the case of *Solandra grandiflora* before mentioned.

This knowledge that flower-buds and leaf-buds are mutually convertible is no novel discovery, much less a visionary theory, for, as long ago as the beginning of 1817, the late Mr. Knight thus expressed the results of his experience, when writing to the London Horticultural Society relative to the pruning of Peach trees:—"The buds of fruit trees which produce blossoms, and those which afford leaves only, in the spring, do not at all differ from each other, in their first organisation as buds. Each contains the rudiments of leaves only, which are subsequently transformed into the component parts of the blossom, and, in some species, as the fruit also." And he then proceeds to state his experience that leaf-buds of the Apple and Pear have been thus transformed, and of his having succeeded in obtaining every gradation of monstrous transformation, adding, that "every bunch of Grapes commences its formation as a tendril, it being always within the power of every cultivator to occasion it to remain a tendril," either by removing a considerable portion of the leaves, or reducing the temperature and light to which the Vine is exposed.

Turning to the results obtained by practice in endeavouring to obtain double flowers, we learn from Mr. Fish that, making allowance for exceptions, the following may be adduced as leading general propositions:—First. To obtain double flowers from seed, dependance must not be placed upon the influence of a stray stamen that was not converted into a petal or flower-leaf, but means must be taken to make the seeds possessed of a property which otherwise they would not possess, by superinducing a highly elaborated, full, plethoric habit in the seeds. This can only be done by stimulating the plant with high cultivation at a certain period, after the flower-buds appear, and then by removing the greater portion of the seeds. If the stimulus is applied at an earlier period, the plant will increase greatly in luxuriance; by giving it thus later, a greater degree of strength is conveyed to the flowers. By thinning these flowers, or the seed-vessels, as soon as formed, so as to have only a very few seeds to ripen, these, in consequence, acquire a full plethoric habit; and we know that in the vegetable and animal world alike this state is opposed to productive fruitfulness, while in the depletheric state it is encouraged. From a full double flower, therefore, we expect and obtain no seeds. From such plants as Balsams, which, though said to be double, yet produce seeds, the rendering them more double must be obtained by the high cultivating and seed-thinning process. In their case, as well as some others, compact-

ness of growth and clearness of colour seem to be gained by preserving the seeds for several years; the fresher a seed, the sooner will it vegetate, and the stronger and more luxuriant the plant. In double composite flowers—such as the Dahlia, which consist of a number of florets upon a common receptacle, though the most of these florets may have their parts of fructification changed into petals, others may be unchanged, though they remain unnoticed until the petals fall off; and from these, when seeds are produced, more double flowers may be expected than from seeds saved from more single varieties, because possessing a greater constitutional tendency in that direction. This will more especially be the result when, as in other cases, high cultivation is resorted to whenever the seed appears. Thus something like superfœtation is induced in the seed, which leads it afterwards, when sown, to develope itself more in leaves and petals (which botanists tell us are the same thing), instead of flowers producing seed; and this altogether independent of the culture it receives for that season. When any of our friends, therefore, look somewhat disconsolate on their beds of Stocks nearly all single, they may rest next to assured that the culture they imparted had little or nothing to do with it. The seeds they sowed would have been single under any circumstances. The matter is different in the perennial plants—such as the Daisy and the Primrose. Without resorting to seeds at all, the plant from being divided, having its soil frequently changed and stimulated by rich compost, will often gradually change from the single into the double-flowering condition upon exactly the same principles; luxuriance and fruitfulness being ever opposed to each other.

Secondly. On much the same principle, care should be taken to preserve double flowers, when propagating them by cuttings, runners, and divisions of the root, by giving them the same careful cultivation, otherwise they are apt to return to the primitive single state. To secure this object effectually, two considerations should be attended to. If a rich stimulating system of cultivation is at first resorted to, there will be the likelihood of having a luxuriant development of stem and leaves, at the expense of depriving the flowers of their requisite proportions. In all free-growing luxuriant plants it will be wise policy not to overstimulate the plant until the bloom appears; and the increased nourishment judiciously given will then enlarge the size of the flower, while the rest of the plant would continue to maintain a comparative dwarf and stubby character. In choosing seed when it is produced, let it be selected from such plants. Then, again, if the size of the flower is to be maintained, and prevented degenerating into its primitive condition, rich composts should not only be used, but fresh soil, if possible, given to them every year.—(*Cottage Gardener*, iv.)

Another practical man, Mr. Wooler, Geneva House, Darlington, remarks that, "In Germany, seed-growing and thus doubling flowers have been greatly effected by rich culture in pots, and selection of plants with indicating a predisposition to produce excess of petals around the corolla, but particularly when the stamens are converted into petals. From my own experience, I have learnt that a bed, made up on the north side of a three-feet-high new Quickset hedge, which was not too dense or tall to prevent both air and light to permeate, yet, at the same time, afforded shade from the parching sun, produced most flowers from seedlings (which had been raised in light, rich earth, in pans, and then pricked out), partly semi-double, and which, when removed to poorer soil, lost this disposition of their stamens to become petals. I would, therefore recommend such a border made of stiffish loam, with plenty of old Melon or hotbed manure dug into it; although this class of plants will, with due shade and moisture, not only flower best, but these flowers will, under such circumstances, be much larger than if exposed to too much sun and the wind. Were I to make a renewed attempt, I would have every plant in a pot, so that it might be completely under control; and when the seed was perfecting, it might, if needs be,—as, for instance, if the weather should prove wet and cloudy, so as to unduly promote the growth of leaves,—be removed to a drier and more sunny situation.

"Of course, only flowers with six, seven, eight, or more petals, or the stamens transformed into petals, or with any other indication of a predisposition to produce double flowers, should be allowed to remain upon the plant.

"I have heard it said that the double Primrose, if planted in poor soil, will return to the single state. I have tried, but never could accomplish this; my object was to endeavour to get these double flowers with duly-formed seed-vessels and pistilum to enable me to impregnate it, and get seed from it. The double varieties are so fully double, that seed-vessel, stamen, and pistilum, are all converted into petals; and thus, failing in these organs, the flowers are so much more enduring than the single ones, in which, as soon as the ovarium is impregnated, the petals are gradually deprived of their nutriment.

"Flowers, not 'pin-headed,' are difficult to cross, as it is a tedious operation to cut out with scissors the stamens before the pollen has been scattered. I tried many experiments, some years ago, and found that the whole of the corolla, with the stamens, might be amputated without diminishing the power to perfect seed. But, for the sake of doubling this cannot be recommended; for, as the stamens grow from the tube of the corolla, no doubt the petals must have some effect to confer. Besides, as the object is to induce the greatest predisposition to multiply both growth and number of petals, these should be given all encouragement, and several of the pips removed, so that the few remaining may have no stint of the requisites for their development."—(*Ibid.*, xxii.)—J.

(*To be continued.*)

WHAT TO LOOK FOR ON THE SEASHORE.

(*Continued from page* 247.)

Jelly Fish (*Continued*).

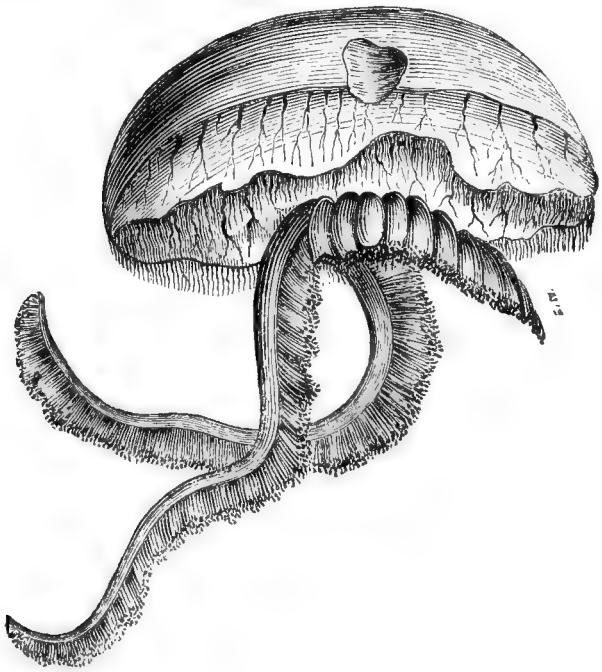
Another peculiarity of these strange creatures, the Jelly Fish, is deserving of particular notice, and provocative of special admiration—namely, the power many species possess of emitting a bright phosphorescent light. We may remark in the first place, that a fleet of these creatures seen in the daytime in calm weather when they swim close to the surface of the water, present a magnificent sight; for, as the sun shines upon them, the variegated irridescence with which its light is reflected to the eye of the beholder, is peculiarily beautiful. This irridescence resides in eight longitudinal bands, which encircle the animal; over these bands the light plays, and at last all the colours of the rainbow dance and sparkle over the surface with extreme brilliancy. These bands are the locomotive organs, and it is to the action of the light glancing upon them when in motion, that this charming appearance is to be attributed. With the approach of night this glittering scene gives place to another as effective, for they are as luminous by night as by day, although the light is of a different character. We revert, then, to the phosphorescent light emitted by many of the species; indeed, the Arabians on the borders of the Red Sea give the name of "Sea Candles" to the entire family of Jelly Fish. It is an error, however, to suppose that they all possess this phosphorescent quality any more than the stinging properties with which they have been indiscriminately invested. Through this phosphorescence the sea appears as if filled with fire, especially when the surface is rippled by a slight breeze, or the waves are dashed aside by the motion of a boat;—as Professor Forbes expresses it, "when on a summer's night the waves flash fire as they break upon the shore, or glow with myriads of sparks as they curl and froth about the prow of the moving ship, or under the blade of the striking oar, it is to delicate and almost invisible Medusæ that they chiefly owe their phosphorescence."

If a vessel be filled with sea-water containing some of the Jelly Fish, and placed in the dark, it will emit small flashes of light on being tapped, or even if the foot be stamped upon the ground; in fact, on any mode of irritation being adopted against the inhabitants of the vessel. This phosphorescence is a vital phenomenon, and ceases on the death of the animals, although some of them, in common with other organic substances, are luminous even after death; but the light is of a different character from the phosphorescence displayed during life; the living irradiations of the animal being of a yellowish red, whilst the light given out after death is of a bluish green. The magnificent phenomenon of the illumination of the sea, described by so many travellers, is thus seen to be caused by the brilliant sparks emitted by these strange marine animals, especially by those which are no bigger than a pin's head. That the larger species are phosphorescent, however, as well as the smaller, is clearly proved; and the sailor on his midnight watch may often see, far down below the keel of his vessel, strange bright bodies which look like swimming globes of fire, or red-hot cannon-balls. These are supposed to be globose and luminous Medusæ of very formidable dimensions. All the species on arriving at maturity are free swimmers. They may be caught by means of a muslin net, which must be drawn gently

through the water, and occasionally turned inside out into a glass vessel of water (salt, of course), when the smaller specimens captured will float away uninjured; many, however, are so transparent and delicate, as to be with difficulty detected.

The Medusæ have generally been divided into two classes, the Naked-eyed (*Gymnopthalmata*), and the Covered-eyed (*Steganopthalmata*). The smaller kinds belonging to the former class, the larger to the latter, which sometimes attain a gigantic size. In the Naked-eyed classes, the eye-like spots (*Ocelli*), surrounding the margin of the disk are quite exposed; whilst in the others these organs are protected by a more or less complicated membranous, or lobed, covering. In the former the *Ocelli* are always placed on the bulbs at the base of the tentacles; in the second group, on the contrary, they are always placed between the marginal tentacles. Now, although the terms "Naked-eyed" and "Covered-eyed," express distinctions which include the organs of vision, they do not rest wholly on them. There are other characteristics which indicate the Covered-eyed Medusæ to be of a higher grade of organisation than the Naked-eyed species. For example: The former have a much more perfect arrangement of vessels; the latter having only very simple and ordinary canals. They may be further subdivided into three orders—viz., *Discophora*, *Ctenophora*, and *Siphonophora*.

The *Discophora*, or those having a disk, may be described thus:—Body in form of circular disk more or less convex, and umbrella-shaped, with a large, central, digestive cavity, moving by contraction and expansion, and these are of the family chiefly known to us. Of the other orders, indeed, we know little save their forms. There is a strange phenomenon connected with these animals—viz., their reciprocal generation with certain Polypes. These Polypes will produce a quantity of little *Discophora*, which afterwards bring forth a generation of Polypes. We now look on the counterpart of this strange process, a free-swimming Medusa, producing little motive eggs, which become in time stationary Polypes, and ultimately throw off a multitude of Medusæ.



The most known, or, at least, the best known of the tribe, is the "Eared Medusa" (*Aurelia aurita*). It has four imperfect pink rings in the disk, and may be often seen floating in our harbours, or washed ashore on the beach. Its margin is fringed with very numerous and very short tentacles. The arms (*brachiæ*) are two, three, or four, according to the age of the specimen. Our drawing represents one of medium age, with two perfect arms, and a third advancing in growth. It is chiefly found in the Baltic.

The next order, *Ctenophora*, so called from the comb-like arrangement of their cilia, have the body symmetrical, are not disk-shaped; they have a digestive cavity, and move by means of parallel rows of cilia on the surface of the body. The most common of this order is *Beröe*, so called from one of the numerous daughters of Oceanus; or *Cydippe* (an attendant on Cyrene, the fabulous daughter of the river Peneus). The body of this creature, which is also called the Sea-Lemon, is globose or ovate, with eight longitudinal ciliated ribs, and two long tentacles covered with spiral tendrils. Cydippe particularly gives out a beautiful irridescence when played upon by the sunlight. This little creature seems almost as if it were composed of glass, and its tentacles spun from the same material, so bright and delicate are they. They are also retractile, and may be either withdrawn within the body or shot out to a surprising length. The creature has also the power of altering its shape by contraction and expansion; so that engravings of it may frequently exhibit very different appearances.

The third order, *Siphonophora*, so called from its syphon-like sucking organs, have an irregular body, no central digestive cavity, without tentacles round the mouth, and move freely by means of a special swimming apparatus (whence they are styled swimming Polypes). They have prehensile filaments or feelers, and protective covers. The best known species are the *Physalia*, which swim constantly on the surface of the sea, and for that purpose make use of a crest on the top of the swimming bladder as a sail (whence their usual name, "The Portuguese Man-of-war,") and are often seen in large fleets sailing along the gulf stream and other currents of the ocean. The covers or bracts mentioned are for the protection of the animal, contributing little or nothing to its motion. The feelers are cylindrical or vermiform structure, somewhat resembling those of the Polypes, but without an external opening. In some cases they are in constant motion, feeling about in all directions; in others they are sluggish, and loaded with the general nutritive fluid. As in the case of all Jelly Fish, the specific gravity of the Siphonophora differs little from that of sea water. The shell found in some varieties is only the thickened and hardened wall of the air-sack.

All the tribe of Jelly Fish feed on Crustacea, small fish, and all minute marine animals, which are seized and paralysed by their deadly arms; and as the mouth and stomach are capable of almost indefinite expansion, the size of their prey often appears wonderfully disproportionate to their own.—W.

(*To be continued.*)

RELIQUES OF PETER COLLINSON.

At Collinson's garden at Mill Hill, the *Periploca Græca* and numerous other trees and shrubs flowered for the first time in England. The place was kept up for some years by his son; afterwards it changed hands, and fell into the possession of the Protestant Dissenters, who established there a grammar-school. A new house has since been built.

In 1835 there stood in the grounds a Cedar 60 feet high, its lowest branches reclining on the ground, and covering a space of 70 feet in diameter. Two *Pinus cembra*, with trunks nearly 2 feet in diameter, and from 50 to 60 feet high—the finest specimens of this tree in England. These are probably the plants presented to him by the Duke of Argyle—one brought from Siberia, 1753; the other from the Alps, 1761. There was also, in 1835, near his former residence, a Hemlock Spruce 50 feet high, extending 40 feet in diameter. A cone of Laurustinus 20 feet in diameter at the base, besides several other trees and shrubs, evidently as old as the time of Collinson.

To the credit of the proprietors of the school, these fine specimens are carefully preserved, and the name of Collinson respected as it ought to be. Many of the rarest plants had, through mere ignorance, been rooted out by a former owner; trees scarcely to be found in perfection anywhere else in the kingdom at the time, and to contemplate which good old Peter wrote, in one of his copies of "Miller's Gardener's Dictionary," at the age of sixty-eight, furnished his greatest source of happiness.—(*American Gardener's Monthly.*)

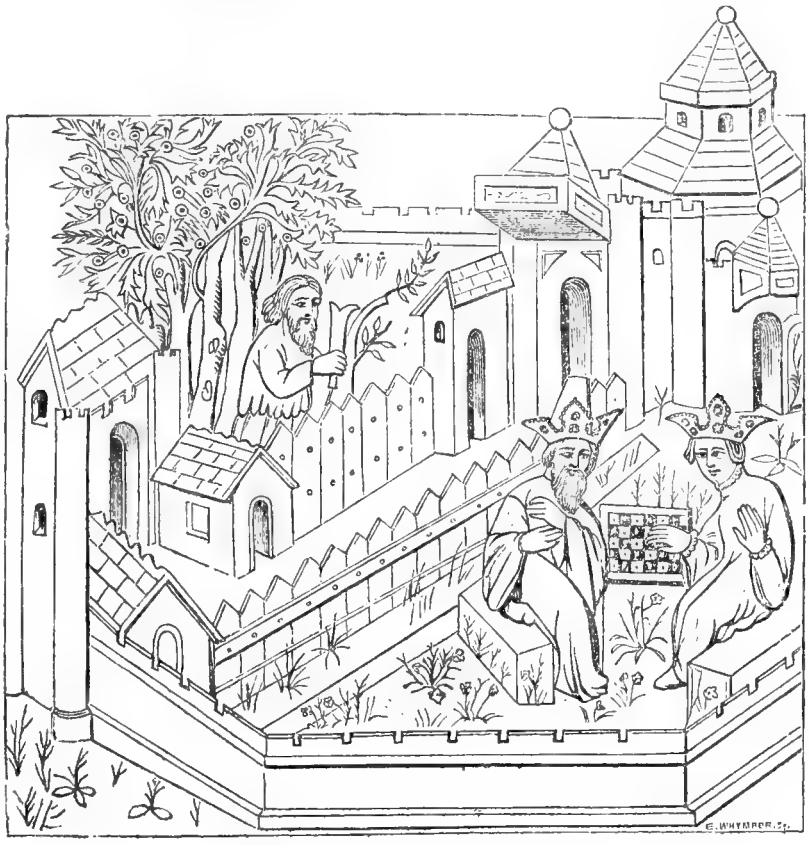
Large Sugar Peas.—We have received from Messrs. Charlwood & Cummins, of Tavistock Row, Covent Garden, samples of a very large Sugar Pea, which they very aptly call the *Brobdignag Sugar Pea*. The pods measure 5¾ inches long, and 1¼ inch wide, and are somewhat curved laterally as all the Sugar Peas are. Messrs. Charlwood are not quite certain that it is a new variety. It bears a strong resemblance, from what we can judge, to a variety called *Géant*, by the French; but whether it be distinct or not, it is one which all who are cultivators of the Sugar Peas for stewing ought to grow.

ENGLISH FLOWER GARDENING IN THE FOURTEENTH CENTURY.

For this interesting illustration of the style in which gardens were arranged in the fourteenth century, we are indebted to Mr. Hudson Turner's "Observations on the Horticulture of England in Early Times," and he copied the drawing from a MS. of that date in the Bodleian Library, entitled "Romaunt d'Alexander."

It is evident from this drawing that in those feudal days the garden and orchard were within the embattled walls which surrounded the baronial residence, and, consequently, were of very limited extent. Those days were not days of vegetarian diet; venison pasties, chines of beef, and pottles of ale and wine were alike the daily food of ladies as well as of the more athletic sex.

Even in the drawing before us, representing as it does a royal residence, the flower-borders contain little more than Clove Gilliflowers. The flower garden is separated from the way leading from the entrance-gate to the palace only by ordinary paling, and by similar paling the orchard is separated from the road on its other side. There are no beds of flowers in the garden, but there is a border beneath the paling separated by a path from what might be a grass plat, and on which the royal pair are disporting themselves, as Caxton terms it, at "The game and play of the Chesse." The season must, therefore, have been of the summer-tide, and, indeed, the fruit on the orchard trees tell the same. In which case, unless the draughtsman is guilty of an anachronism, they grafted late; for the gardener seems employed in that act of fruitcraft, and must have been more than usually adroit if he had no other grafting implement that the bill-hook in his hand. This leads, perhaps, to the more reconcilable conclusion that he was cutting off the head of a stock, the scions on which were established.



GARDEN OF THE FOURTEENTH CENTURY.

Thus meagre is all the information we possess of the mode of arranging the flower gardens of the fourteenth century, and we have but little more particular details of their contents. We will quote Mr. Hudson upon this point.

"Our invaluable authority, Alexander Necham, Abbot of Cirencester in the thirteenth century, says a 'noble garden' should be arrayed with Roses, Lilies, Sunflowers, Violets, and Poppies; he mentions also the Narcissus (*N. pseudo-narcissus?*). The Rose seems to have been cultivated from the most remote time; early in the thirteenth century we find King John sending a wreath of Roses to his lady, *par amours*, at Ditton; Roses and Lilies were among the plants bought for the royal garden at Westminster, 1276; the annual rendering of a Rose is one of the commonest species of quit-rent named in ancient conveyances. The extent to which the cultivation of this flower had been carried between the fourteenth and the sixteenth century, may be estimated by the varieties enumerated by Lawson ("A New Orchard and Garden," &c., page 57); they are the red, damask, velvet, double-double Provence Rose; the sweet Musk Rose, double and single, and the double and single white Rose. The Provence Rose was probably first imported in the fifteenth century, when the occupation of France by the English may be conjectured to have caused the introduction of many additional varieties of fruits and flowers; the marriage of Margaret of Anjou with Henry VI. may be regarded also as an event likely to have brought the Provence Rose to our northern climate. Of all the flowers, however, known to our ancestors, the Gilliflower or Clove Pink (*Dianthus caryophyllus*), (*clou-de-giroflée*,) was the commonest, and to a certain degree the most esteemed. Mr. Loudon has stated, erroneously, that the cruelties of the Duke of Alva, in 1567, were the occasion of our receiving through the Flemish weavers, Gilliflowers, Carnations, and Provence Roses. The Gilliflower had been known and prized in England centuries before. At the end of the sixteenth century, Lawson, who terms it the king of flowers, except the Rose, boasted that he had Gilliflowers 'of nine or ten severall colours, and divers of them as bigge as Roses. Of all flowers (save the Damaske Rose) they are the most pleasant to sight and smell. Their use is much in ornament, and comforting to the spirites, by the sence of smelling.' There was a variety of this flower well known in early times as the wall Gilliflower or Bee-flower, 'because growing in walles, even in winter, and good for bees' ('The Country Housewife's Garden,' page 14). The reserved rent, '*unius clavi gariofili*,' which is of such frequent occurrence in medieval deeds relating to land, meant simply the render of a Gilliflower, although it has been usually understood to signify the payment of a Clove of commerce. The incorrectness of this reading must be apparent, if it be recollected that the Clove was scarcely known in Europe in the twelfth and thirteenth centuries, when this kind of reserved rent was most common.

"Another flower of common growth in medieval orchards, or gardens, was the Pervinke, or Periwinkle—

> 'There sprang the Viclet all newe,
> And fresh Pervinke, rich of hewe,
> And flowris yellow, white, and rede;
> Such plente grew there nor in the mede.'—Chaucer.

"As this plant will flower under the shade of trees or lofty walls, it was well adapted to ornament the securely enclosed, and possibly sombre, gardens of early times.

"From an early period the nurture of bees had occupied attention in England; the numerous entries in Domesday in which honey is mentioned show how much that product was employed for domestic purposes in the eleventh century. Among other uses to which it was applied was the making of beer or ale (*cervisia*). When the Duke of Saxony visited England in the reign of Henry II., the sheriff of Hampshire had an allowance in his account for corn, barley, and honey which he had purchased to brew beer for the duke's use (Madox's History of the Exchequer). An apiary was generally attached to a medieval garden, and formed part of the stock which, according to the usage of early days, was sometimes let out to farm. In the fourteenth century an English writer, whom I have before quoted, observed that every hive of bees ought to yield, one with another, two of issue, as some yielded none and others three or four yearly. In some places, he adds, bees have no food given to them during winter, but where they are fed a gallon of honey may suffice to feed eight hives yearly. He estimated that if the honey were taken only once in two years each hive would yield two gallons. It is in accordance with this ancient practice of

gardening that Lawson, in his 'Country Housewife's Garden,' devotes a chapter to the 'husbandry' of bees. 'Your bees,' he observes, 'delight in wood, for feeding, especially for casting; therefore, want not an orchard. A Mayes swarme is worth a mares foall; if they want wood they be in danger of flying away."

(*To be continued.*)

NOTES FROM NOTTS.

I am a gardener only upon a very small scale; but as a subscriber for many years to The Cottage Gardener, and being much indebted to that publication for the little knowledge I possess, I have thought that a few notes from this midland district might be worth insertion in that journal.

My garden is small—just such a one as you would expect to find attached to a poor vicarage; and during the time that I have been vicar of this place I have waged a war of extermination against almost all the deciduous trees that I found in it, substituting in their place many of those magnificent new evergreens which are now within the reach of all persons; so that, minus the flowers, the garden is as pretty in winter as summer.

No one can realise the full beauty of the bright scarlet blooms of *Punch*, *Crystal Palace*, and an old friend—*Tom Thumb*, upon which that ungrateful and fickle man Beaton has turned his back, unless they are planted in contrast with Irish Yews, Cedars of Lebanon, or some of the dark-foliaged Cypresses and Junipers.

Some of my most telling beds are round, four feet across, with a standard Rose in the centre. Of these some of the best are the following:—No. 1, *Flower of the Day*, edged with blue Lobelia; 2, *Tom Thumb*, bordered with Verbena *Purple King*; 3, *Gazania splendens*, with an edging of blue Lobelia; 4, *Frogmore*, surrounded with *Cerastium tomentosum*; 5, *Ageratum*, edged with *Golden Chain*: 6, *Kingsbury Pet*, and blue Lobelia; 7, *Hendersonii*, white, edged with *Tom Thumb*; 8, *Flower of the Day*, bordered with purple Verbena *Ariosto*; 9, Perilla, surrounded with *Calceolaria floribunda*, interspersed between the Calceolarias with Lobelia; 10, *Punch*, edged with white Verbena *Mrs. Holford*; 11, to my fancy the best and brightest bed of all, *Countess of Warwick*, bordered with Lobelia. The dark zone upon the leaves of the *Countess* contrasts beautifully with the white-margined leaves and brilliant scarlet flowers. No variegated Geranium is so effective on dark days as this—it is a perfect treasure this most dismal summer. These are some of my best beds.

The blue Lobelia consists partly of old plants, partly of seedlings; but the seedlings, of which I have a great number planted out, are all, without one exception, true to colour, and can only be distinguished from the old plants in being more backward in growth and flower. The Lobelia seed came part of it from Henderson, and some of it was given to me by my friend Nathan Pownall, gardener to that most excellent man and talented agriculturist, W. Sanday, Esq., of Holme Pierrepont.

Two beds of Tropæolum, one *elegans*, the other *Stamfordianum*, twining up the standard Rose in the centre, are very effective. What a great addition to the beauty of the garden is the lovely pink Geranium *Christine*, so clear in colour and so compact in growth. My Geraniums were in full bloom the second week in June. They were planted out between the 12th and 20th of May. We seldom take up an old plant; and almost all the sixteen hundred which are bedded were struck from cuttings planted the first ten days of August, 1859, and potted and housed all before the 10th of October. The bed for striking cuttings should be built upon a hard foundation—flag-stones, or boulder-stones, or anything of that sort, in the hottest and sunniest place to be found, rather upon an incline, if possible, to secure good drainage. The cuttings being put in, with nearly all their leaves upon them. My striking-bed is under the kitchen window, in a back yard paved with large stones, and having a south aspect, surrounded on all sides with walls—a perfect frying-pan upon a scorching day, and we seldom lose any of the young plants. The sides of the cutting-bed should be built of bricks, two deep, and filled in nearly to the top with good soil. The great secret with bedding Geraniums is to get the cuttings in soon enough, and up soon enough before they are touched with frost. However fine the weather, the last should be up, potted, and housed before the 10th of October.

To secure fine healthy plants and early bloom, a house should be entirely devoted to the bedding plants, so that the temperature can be adapted exclusively to their wants. The less they grow until the spring sunbeams set them going the better: because, if struck early enough, they will be good strong plants to commence with; and if winter growth is promoted by overmuch heat, the house will become far too full before the planting-out time comes, and the plants will be drawn up and straggling, instead of compact bushes, as all bedding Geraniums should be.

My house for bedding plants is thirty-six feet long by twelve feet wide. The sides and ends are of brick, the passage down the middle, the stages right and left, and a raised brick-flue all round. The ventilation at the top through a hit-and-miss shutter. There are doors at each end. I hope to keep in it 1800 bedding plants through this coming winter. The plants were all most healthy there the last winter, as proved by abundant show of June bloom.

In a small house, devoted in winter to bedding plants, we are trying the experiment of growing Melons in pots and boxes. At present there is a fair prospect of success, most of the plants have three and some four Melons set, and all swelling rapidly; both plants and fruit appear perfectly healthy as yet.—R. B., *Radcliffe-on-Trent, Notts.*

[We omit the unfavourable opinion on the new Dianthuses and Geraniums, because it is contrary to the opinion of some best authorities, and we advise our correspondent to suspend his judgment for a year.—Eds. C. G.]

SEEDLING POTATOES—RACES OF VEGETABLES.

Notes of a paper read at the Royal Dublin Society, by D. Moore, M.R.I.A., &c., Curator of the Botanic Garden.

Mr. Moore observed that a very general idea prevailed during the first years of the Potato disease, that it was consequent on the old stock having become worn out, which led many to suppose that a fresh stock raised from seed with new blood in them would either be wholly exempt from the malady, or be only attacked in a mitigate form. Others did not believe in that theory, and grew seedlings for experiment to disprove it. This led to the cultivation of a great variety of seedlings by both parties. J. Anderson, Esq., Fermoy, County Cork, had sent as many as 115 kinds, marked as distinct varieties by him, to the Botanic Garden, in 1854, which he alleged were proof against the disease; but on their being subjected to trial they were found fully as liable to be attacked as the old stock. Mr. Moore went even beyond the idea of seedlings from the old stock, and had some of the original tubers brought from South America, which, although planted apart from any other kind of Potatoes, were attacked early and virulently the first year after they arrived. Thus he believed he had fully negatived the theory of the disease being consequent on a worn-out stock, and in doing so he had arrived at other results of much more information to the public. The cultivation of seedlings had been continued in the Botanic Garden more for the purpose of trying whether as they advanced in age they would become better able to resist the disease than anything else, as they appeared worthless to grow as general crops. During the first years they were soft and waxy, the skins did not burst on boiling, besides they had a wild unpleasant taste, which he believed was the case with all seedlings at first. The waxy soft state of the young tubers, he considered, was owing to the starch granules not being well developed in the cells, as can easily be seen by subjecting a sufficiently thin section of a seedling Potato during the first years of its growth to investigation under the miscroscope, and one from a well matured tuber of an old sort. In the former the cells will be found filled with small granules of soft mucilaginous matter, with only few starch granules, which are small; whereas, in the latter, if it be well ripened, the starch granules are large and fully developed, as well as numerous in the mass. As the cultivation went on, the crop was found to improve every subsequent year in quantity, quality, and distinctiveness. Out of two hundred sorts, fifty-four of the best were selected, which had been under experiment for ten years, and, although so worthless at first, were now fully as good as some of the best of the old sorts, and could be safely grown as general crops. This was the most important fact he had to state in connection with this subject, because it went far to account for the failure and abandonment of growing seedlings by most people, as well as for his success. All seedlings are comparatively useless at first, and it requires a long period of

careful and judicious management to bring them to perfection; and the chemical constituents continued to develope gradually and slowly, and it was only when they were thus perfected that the full value of any kind could be ascertained. On further remarking on this matter, Mr. Moore stated, that although fifty kinds and upwards of new varieties had been cultivated in the Botanic Garden, he doubted whether much good had been done to agriculture in consequence. None of them yet exceeded the best old sorts, though some were very prolific, and grew with such vigour as to show that there was something in the new blood after all. The reason of failures, he believed, was chiefly owing to those who raised the seedlings not understanding what they really sought to obtain, nor endeavouring to get good results according to physiological laws. None of our root crops, he considered, were more subject to our control than the Potato, and it only required the operator to conduct his experiments on sound principles to insure success. For the most part those who raised seedling Potatoes collected the apples from any sort which happened to ripen them, and should any good result follow it was only a matter of chance. This is not the way to go to work, as he endeavoured to instance by showing that varieties of a species, in sportive plants like the Potato, did not come true from seed, so as to resemble the parent variety from which the seeds were taken. As an example of this, he stated that if a hundred seedlings were raised from the well-known *Kemp* Potato, probably not more than one-third, if so many, would bear the slightest resemblance to the *Kemp*. Some would, probably, be red-skinned, be long or oval-formed, have different coloured blossoms and so on, departing from the parent plant. Yet a few would very likely resemble the parent very closely, and improve on the the good qualities it possessed. But, supposing another case, for example, that *Red-nosed Kidney* Potatoes and *Kemps* were growing near each other, and the operator knowing enough of the organs of plants and the functions they perform so as to enable him to fecundate the blossoms of the one with the pollen of the other, a cross would be the result, and, probably, more than half the offspring would be intermediate between the two parents. In this way we act in strict accordance with physiological laws, which are almost certain to produce the object sought for.

He would not follow the Potato farther, but would make some observations on other kinds of agricultural produce, of which such splendid examples had been exhibited before the Royal Dublin Society. To those who studied this subject so as to comprehend it fully, it must appear a very remarkable circumstance how few species of plants are capable of being cultivated in this country, or even in any other part of the world with which we are yet acquainted. Upwards of 200,000 species of plants are already known to inhabit the globe, out of which not more than 100 distinct species are under cultivation extensively. In this country not more than a quarter that number, if the grasses be excepted, which must be given as mixtures, and these only belong to a few families. Our farm crops, at the present time, consist of varieties of species most of which have been obtained within the last half century. They are new creations, according to the language of modern philosophers, which have been brought about in some of the ways he had already hinted at, either by hybridising, cross-breeding, or by selection of individuals departing from the typical species. After explaining the meaning of those terms, by reference to a fine set of diagrams containing figures of the principal kinds of our domesticated vegetables, he went on to say that both botanists and practical agriculturists must be astounded to think how true many of those varieties hold when carefully cultivated apart from other varieties of the same species. Yet there is a constant tendency of some individuals out of any batch of seedlings to revert back to the original type. He instanced the Cauliflower as an extreme variety of the Cabbage, and said that every gardener must have observed in a bed of seedling Cauliflower plants some individuals differ from the mass, and bear a closer resemblance to flat Dutch or Broccolis. Those were called in vulgar parlance "rogues" and generally eradicated. They were, however, rogues of no small importance to the experimental physiologist, because they showed a tendency to revert back to the original type; and he believed that if care were taken to breed back as well as it was taken to improve on qualities, the Cauliflower might, in a few generations, be brought to resemble the pure type of the species. This led him to think that however learned, able, and ingenious Mr. Darwin's reasonings were, in his lately published work on the "Origin of Species," he was yet wanting in practical knowledge on some of those subjects. We have ample evidence of progressive development, but we also see a tendency to retrograde. Although many of the originals of our agricultural and horticultural plants be not certainly known at present, they may have perished before what are known as the historical ages, and yet their offspring still show a tendency to revert back to them. The Carrot was instanced as the improvement of a race by selection in the first instance, and afterwards by cross-breeding, some of the varieties being what are termed mongrels—*i.e.*, the offspring of two distinct varieties of the same species. Some of the varieties of Turnips were also instanced as hybrids or mules—*i.e.*, the offspring between two distinct species, as the Swedish Turnip and any of the other sorts now considered. The former had its origin in the wild *Brassica campestris*, a worthless weed; and the latter in *Brassica napus*, another useless weed. It has been by artificial processes and the care bestowed on this valuable crop by man that the varieties have attained to their present state of perfection.—(*Dublin Agricultural Review.*)

HORTICULTURAL SOCIETY.

FRUIT COMMITTEE.

A Meeting of the Fruit Committee was held on Tuesday, the 31st of July, at the Rooms, St. Martin's Place. Mr. F. J. Graham, in the chair.

Owing to the late and ungenial season, there were no competitors for the long list of premiums that were offered for early fruits. In such seasons as the last, we had early Peaches, Plums, and Apricots, by the end of July; but this season such Plums as *Early Prolific*, which were all gathered by this time last year, are now as green and hard as Bullaces.

The only prize competed for, was for the best Gooseberry, combining size and flavour, which was obtained by Messrs. Meyers & Son, Boston Road, Brentford, with *Companion*, a very large and highly flavoured sort.

A Seedling late Strawberry, from Mr. Ingram, of Frogmore, and called *Frogmore Late Pine*, received a First-class Certificate. The fruit is of the largest size, of excellent flavour; and the plant appears to be an abundant bearer. Another late variety called *Sanspareil*, from Mr. Culverwell, of Thorpe Perrow, near Bedale, also received a First-class Certificate. It is not so large as the preceding, and is of a long, conical shape, remarkable for the firmness and deep red colour of its flesh, which is also richly flavoured.

Mr. Standish again exhibited bunches of *Ingram's Hardy Prolific Muscat*, which was on this occasion more highly ripened than when last exhibited, and its flavour was exquisite, abundantly sugary, with a fine racy piquancy. It was awarded a First-class Certificate.

Mr. Cuthill, of Camberwell, sent dishes of his Seedling Strawberries, *Highland Mary* and *Richard the Second*. The latter is an improved form of *Black Prince*.

Mr. Whiting, of the Deepdene, sent a splendid bunch of the *Buckland Sweetwater* Grape, which fully confirmed the high opinion which has already been formed of its merits. The bunch was heavily shouldered, and the berries large and somewhat transparent, like those of the *Dutch Sweetwater*.

A Dwarf Green-seeded Garden Bean, in the way of *Marshall's Prolific*, was sent by Mr. Jennings, of Shipston-on-Stour; and Mr. Turner, of Slough, sent two specimens of his *Turner's Favourite* Cucumber, measuring 21 inches and 23 inches long respectively.

BRITISH POMOLOGICAL SOCIETY.

The Annual Meeting of the British Pomological Society was held at the Hanover Square Rooms, on Thursday last. J. Bemersyde Haig, Esq., in the chair.

The business of this Meeting was specially for the election of office-bearers for the ensuing year, and to investigate the state of the Society's finances. In consequence of the accounts not having been from some cause submitted to the Auditors, there was no authorised statement to lay before the Meeting; but from the facts supplied by the Secretary, it appeared that while the liabilities are £83, the assets are only £42 19*s.* 7*d.*, leaving a balance of £40 0*s.* 5*d.* against the Society. The assets arise from £12 4*s.* 7*d.* cash in hand; £5 5*s.* due for premiums offered; and £25 10*s.* for subscriptions, presuming these to be good. On

this announcement, the question then arose as to what the prospects were of retrieving this loss in another year. Assuming that there are no withdrawals of the Members, the income of the ensuing year will amount to £171 10*s.*, and the expenses, taking them at the same as last, and below which they certainly cannot go, so as to preserve the efficiency of the Society, will be £243 18*s.* 11*d.*, showing a deficiency which will arise at the end of next year of £72 8*s.* 11*d.*, which, added to the deficiency of this year, would bring the Society in debt in the large sum of £112 9*s.* 4*d.* This being the case it was the opinion of the majority of those present that the Society could not go on; but before bringing forward any resolution to dissolve the Society, it was resolved that the accounts be immediately submitted to the Auditors, and forthwith published and circulated among the Members, requesting them to signify whether it was their wish to continue the Society, and whether they would continue to it their support; a Meeting to be held on Thursday week to receive the replies and determine upon what course to pursue under these circumstances. And as two of the Vice-Presidents, several of the Council, and the Treasurer, had tendered their resignations, it was determined not to proceed with the election of office-bearers till the next Meeting.

Mr. Snow exhibited a fine bunch of his *Muscat Hamburgh*, which was hardly ripe. Mr. Sclater, nurseryman, of Exeter, sent *Belle Magnifique* Cherry; Pear *Suisse*, a small-striped early variety; a Seedling Raspberry, and a Seedling Pea. Mr. Saunders, gardener to Sir H. Meux, sent three dishes of Cherries, one of which was a *Bigarreau*, from a wall, the same variety from a standard, and small hard-fleshed and very bitter-tasted variety, evidently a wilding.

THE SWALLOW-TAIL BUTTERFLY AND CHRYSALIDS.

I mentioned in a previous paper that the Swallow-tailed Butterfly was rather rare; but it seems to have been plentiful during the past season in the fens. This is noticed by "R. B. P.," at page 229 of Vol. XXIII., who inquires why I classed it with the Sulphur Butterfly. One that writes scientifically would have said that both belonged to the "Papilionidæ" family. Mr. Westwood, whose authority is beyond question, places the *Papilio Machaon*, or Swallow-tail, in the first genus of that family; the *Gonopteryx Rhamni*, or Brimstone Butterfly, in the second genus. Those two and the *Aporia Cratægi*, or Black-veined White Butterfly, in company with their larvæ and chrysalids, make a pretty group in the first plate of that entomologist's excellent book on "British Butterflies;" and, like all his other plates, these are beautifully represented upon the plants on which their larvæ feed. Many of those plants are herbaceous, which the grubs quit before their transformation, in order to fix themselves in surer winter quarters; for, however well attached to herbaceous stems, either by skeins of silk across the chrysalids, or suspended by their own tails, they would be certain to fall to the ground when the plants decayed. Then they would have less protection from birds and mice than those of the "Hesperiidæ" family, whose larvæ roll themselves up in leaves in which they spin silken cocoons to protect their chrysalids. Likewise those of Moths, whose larvæ undergo transformation about one inch or two under ground close to the roots or stems of trees on which they fed. There are some exceptions, however; for instance: the yellow-ringed cocoons of the Currant Moth are suspended upon the bushes. But those are soon hatched; and perhaps these pretty spotted Moths lay eggs for the next season. Their cocoons, like those of the rest of their tribe, are conical, and are readily known from the chrysalids of Butterflies, which in general are "angularly tubercled." But some families have chrysalids similar to those of Moths, and, like them, undergo transformation under ground; while some of the same species are at other times attached to stems of plants; for instance: the "Polyommatus" family, of which there seem to be eleven native species. One of them is "Artaxerxes," or Scotch Butterfly, which I have seen in boyhood near Edinburgh. It seems doubtful if ever this species has been found in England or on the continent, and now it is rather remarkable that Captain Ross should have found one of that family in the Arctic regions.

I mention their habits more particularly, because "R. B. P." states that he knew "only one Butterfly which is said to ever pass into the pupa state under ground—that is the Oak Feeder." I have also to note, that when I spoke of Moths and Butterflies being bred in London, I meant, of course, from chrysalids previously collected in the country. Lately, a London friend sent me some of both sorts by post. When at work in the country he collects their eggs to hatch larvæ to feed on the leaves of those plants on which they are found. He collects, also, Butterflies and Moths to preserve, and their cocoons lie amongst moss or soil at the bottom of breeding-cages covered with gauze until the next season. At present I have a cage full of cocoons in a warm vinery, and it is very interesting to observe the perfect insects gradually issuing from their mummy-like cases, when they are readily captured.—J. Wighton.

TO CORRESPONDENTS.

Fuchsia Culture (*A. S. P.*).—If you will send five penny postage stamps to our office, and direct "Florists' Flowers for the Many" to be sent to you, you will there find full directions such as you need. If, after its perusal, on any point you require additional explanation, we shall be happy to supply it through our columns.

Double Petunias (*P. G.*).—They are not so good as some similar ones of continental origin. The large mauve-coloured one looks a showy variety, but was not in good condition. It is probably worth growing.

Sowing Indian Seeds (*E. S.*).—Lists of all foreign plants sent for judgment ought to be numbered, and a duplicate of the numbers kept at home to read from. All the Indian Pines or Conifers in your list are well worth the best care you can give them; the rest of the seeds are hardly worth the price of the paper of which the packets are made, but keep them for a while. We have known critical votes obtained for much worse seeds than yours; and we never heard anything less thrifty from Mr. Beaton than his reiterated advice to burn all manner of exotic seeds sent home or brought home as presents. Sow the *Pinus excelsa*, *Smithiana*, and *longifolia* with *Picea Webbiana*, *Thuja orientalis*, and the three Cupresses in shallow pans, or in No. 24-pots, filled one-half with coal ashes for drainage, and the top half with mellow loam without a morsel of anything in it by way of compost. Yellow loam is best; and it ought to be half dry at the time the seeds are sown, and to remain in that condition till the seedlings are up without receiving one drop of water. The way we treat them in June, July, and August is to plunge the pots in some damp stuff—sand being the best for the purpose—in a close cold frame, and keep it close, and the surface of the pots from the sun, till the seedlings are up. The moment the sprouting is seen, abundance of air is given all day and night, but no water to the seedlings the first ten days; after that a little water occasionally on very fine days. Except in the hands of good gardeners, such foreign Pinuses as are thus sown so late in the season had better remain in the seed-pots all the winter, and to receive the very same kind of winter treatment as they give to Mignonette, or those Intermediate Stocks which bloom so double and so fine in May and fore part of summer. It is with that view that we have recommended the pots to be so big as 24's and half full of drainage. Perhaps you would like to raise plants from some of the other Indian seeds for the sake of somebody. If so, get up the following as soon as possible in a hotbed with brisk bottom heat—*Lagerstrœmia Indica* and *reginæ*, *Canna Indica* and the Coffee of Bengal, *Duranta Ellisii* and *Lantana Sellowii*. The large conservatory at Kew is not one-half large enough to grow some of your treasure. And the last on your list, *Bauhinia acuminata*, is a stove climber, which, if it could have its own way top and bottom, would soon cover the dome of the great transept at the Crystal Palace.

Trollope's Victoria Strawberry (*F. G.*).—We shall reply to your query next week.

Orchard House (*A Constant Reader*).—By far the better way to do would be to part off—say thirty or forty feet of the length of your orchard-house, and heat it with hot-water pipes for getting early fruit. To erect a lean-to on the south side would at once destroy the effectual ventilation, and in addition would be very unsightly. If you object to a partition in the house, we would recommend you to erect a new structure altogether for forcing.

Spotted Grapes (*An Old Subscriber*).—The spot affecting the berries seems to be the same disease as shanking, only affecting a different part. Like this disease, it is a gangrene, and is, probably, occasioned by an irregularity in the supply of moisture and vicissitudes of temperature, but especially if one of the extremes is much below the degree of heat most favourable to the healthy growth of that plant. *Muscats* are particularly liable to the spot. Our opinion that sudden vicissitudes of temperature are the causes of this disease, seems to be well sustained by the fact, that the parts nearest the glass—that is, the upper portions of the bunches, and those parts most exposed to the sun's influence, are the first to suffer; and this, also, goes far towards substantiating the assertion, that the shade of the foliage is necessary to the well-doing of Grapes. You do not tell us whether your Grapes are growing in a greenhouse, orchard-house, or stove, nor whether the roots are inside or outside the house. We should mulch over the roots, keep them regularly supplied with tepid water, if inside; not thin the leaves much; and be careful to prevent violent and sudden vicissitudes of temperature, yet ventilate freely, and cut out every spotted berry as soon as detected.

Incrustation in Boilers (*S. H., Macclesfield*).—There is no more likelihood of incrustation in a tubular boiler such as Mr. Weeks's than in a conical, saddle-backed, or any other. In either case, a piece of muriate of ammonia, a few ounces in weight, put in the water will tend to prevent it. In these tubular boilers there is, properly speaking, no flue but the chimney for the smoke, the draught of which can be regulated at pleasure. A medium-sized tubular would suit you. We presume, however, your deficiency of draught with Burbidge & Healy's is owing to some fault in the fixing. A fair-sized boiler would heat the gallons you mention; but perhaps these are not placed so as to throw off the heat to advantage, owing to depth of tank, &c. We do not approve of having the water at any time too hot, but would rather have more surface of pipe and tanks.

Heating a Small Greenhouse (*Nottinghamiensis*).—After all improvements we feel convinced that for small houses, standing singly, the cheapest and best way of heating is by means of a small flue where no great heat is required. For hot water a small retort boiler or a small conical boiler

would do; and for your greenhouse you need at least fifty feet of four-inch pipes. If you contemplated forcing the Vines at all, you would need half as much more piping. The mode of constructing small flues has been given frequently of late.

Peaches and Nectarines Leafless (*W. B. B.*).—Your case is only one among many brought to our notice. We consider the entire fall of the leaves to be owing to the severe early frosts of last autumn which prevented the maturing of the young wood. Unless the trees have produced new foliage, and seem moderately vigorous, which is not likely, we should purchase fresh trees; and, in future, use tiffany protectors like those of which we published drawings in our last volume.

Strawberries (*Poverissima*).—There is no manure better for them than thoroughly decayed leaves. A slight surface dressing in the spring with superphosphate of lime is also beneficial. Guano is too stimulating. If grown in a single row, a foot is sufficient distance between the plants; but double that space is not too much if planted two or more rows together. The rows, also, should be two feet apart. Strawberries will not be prolific on the same ground for many years in succession. We have no information relative to the price of Alpine Strawberries picked for the market. We fear they would not fetch a remunerative price. Dessert fruit must please the eye as well as the palate.

A Few Common Hardy and Greenhouse Plants (*Greenock Subscriber*).—As you have a greenhouse you ought to have some scarlet and variegated Geraniums for the beds—*Tom Thumb* and *Flower of the Day* to begin with; then a few yellow Calceolarias, as *aurea floribunda* and some variegated Alyssum to get cuttings from in the spring, and blue Lobelias from seeds sown in March in a Cucumber-bed; also *Robinson's Defiance* Verbena for scarlet, *Purple King* Verbena for dark, and *Mrs. Holford* Verbena for white. But in the spring you should have Crocuses in the beds; also some dwarf early Tulips, as *Royal Standard*, *Vermilion Brilliant*, and *Rex Rubrorum*, and also some border Auriculas, Polyanthuses, American Cowslips, and any spring flowers you can get. Late in the autumn Chrysanthemums and Pompones are the best for the greenhouse till Christmas; then a few Camellias, Chinese Azaleas, and forced Tulips and Hyacinths, which will bring you on to Chinese Primroses and Cinerarias.

Spergula (*B. S.*).—Your specimen is *Spergula subulata*. It blooms more freely, and is more dwarf than *S. saginoides*, and less suitable for a lawn.

Name of Rose (*Mrs. Pettat*).—Your Rose is not *Général Jacqueminot*, but *Général Brea*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

August 15th. Ormskirk and Southport. *Sec.*, Mr. James Spencer, Ormskirk. Entries close July 31st.

August 22nd and 23rd. Settle (Yorkshire). *Hon. Secs.*, Revs. J. R. Blakiston and J. Robinson, Settle. Entries close August 1st.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 3rd. Heckmondwike. *Sec.*, Mr. Frederick Brearby. Entries close August 24.

September 5th. Keighley Agricultural Show. *Sec.*, R. Fawcett. Entries close August 29th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

HOW TO DISPOSE OF OLD HENS.

The good old hens that have proved so useful in sitting and so attentive as mothers are now rather in the way; the old worn-out plumage, broken feathers, and perished combs are not ornamental; their room is wanted for the chickens and the younger hens; and it is a question asked daily, What shall we do with them? Ours is a Draconian code, and the sentence is always death—even for the slight offence of being one too many in the yard. But we do not insist on this sentence if they can be otherwise disposed of. It is, however, possible there may be no market for the old ladies in the neighbourhood; we wish, therefore, to publish that there is always a sale for them in London at Leadenhall Market. They are wanted for shipping. Young poultry will not stand a sea-voyage—they die; but these seasoned creatures bear it well. We suppose goodness of food is only comparative; and that it is, therefore, by being compared with salted meat these are considered food. But these ancient biddies are said to eat well. Only fancy that old brown hen that the children called "Mother Cackle," because she was never still, and that was considered too hard for the table three years ago. Fancy her, we say, having passed through the hands of the *chef* of some naval captain, and figuring as a remove at rather a crack dinner, and being called a "Poularde à la Toulouse." Poor old creature! the very thought would make her laugh, if possible.

Old hens will generally sell alive for about 18*s.* or £1 per dozen. This is far better than wasting them; and as they will pack closely and a goods' train will deliver them, the expenses attending their transit are not great.

We offer no apology for treating of these common things; because the neglect of them often affects the balance unfavourably, while attention to them will enable many who cannot afford even a small sacrifice to keep their pets profitably. But there are also methods of cooking that will make them eatable and even delicate. We will say nothing of pounding and potting, any one can do that, and it is a laborious operation. But the value of a hen, however old, in the stock-pot for soup or for broth, is three times her own weight of any other meat; but she must not be put in entire—she must be cut up in small pieces; and if the stock-pot is only allowed to simmer instead of boiling hard all the time it is on the fire, the meat of the poor old victims may be eaten. "Ah!" says the advocate of straightforward roast and boil, "a pound per head and no bone. You may eat it, boiled to rags." It may be we are older stagers than some of our readers, and that we have roughed it more; but we will tell them what we have been glad to eat, and found it savoury—the rags as they are called, the shreds of the old hen, and older meat of every kind, cold, mixed with cold potatoes and served with salad dressing. We were hungry, but we found it excellent. It is, however, sometimes desired to make a pie; and here the old hens will do as good service as the youngest chicken—we are not sure they are not better. Cut them in joints, and season them according to your taste; put them in an earthenware dish with a lid to it; add to them any scraps of meat you have. Nothing is too hard or too common. Odd pieces of bacon are excellent, the fat end of the ribs of beef, the flap of the loin of mutton, and the scraps of meat that are left of any joint—above all, the pieces of fat. Fill up your dish by making a mosaic of meat, or by trying to imitate the old-fashioned marble chimney-pieces; put a piece of fowl, then a piece of lean bacon, then a piece of fat, and so on. Fill up the corners with any scrap, shred, or morsel. When the vessel is full pour in some gravy, or, failing that, some water, filling it to the top. Tie the lid down, put it in a slack oven at evening, and let it stay therein till the morning. Then put it aside to get cold; and, believe us, you will have an excellent and a delicate dish. Let it not be supposed the goodness is due to the scraps of meat, because it will be better if there is nothing but fowl in it. It is a capital thing for breakfast, it is very useful on the side-table at dinner time, and may take the place of the "*Pâté de foies gras aux truffes*," just as Beau Tibbs's cow-heel took the place of the Ortolans and venison. It is a glorious dish in cold weather, and cuts out half frozen in tempting slices.

YORKSHIRE AGRICULTURAL SOCIETY'S POULTRY SHOW.

This was held at Pontefract on July 31st and August 1st and 2nd.

The Judges, Mr. Naylor, Wakefield, and Mr. John Jolly, Acomb, York, awarded the prizes to the following exhibitors:—

Spanish.—First, W. Cannan, Bradford. Second, J. Dixon, North Park, Bradford. Five entries.

Dorking.—First, H. W. B. Berwick, Helmsley, York. Second, H. Himsworth, Lupset Hall, Wakefield. Six entries. *Chickens.*—Prize, H. Himsworth. Five entries.

Cochin-China (Black or White).—First and Second, W. Cannan, Bradford. Three entries.

Cochin-China (any colour not Black or White).—First and Second, W. Dawson, Hopton, Mirfield. Six entries. *Chickens.*—Prize, W. Dawson. Two entries.

Game.—First, W. M. Julian, Beverley. Second, T. Dodds, Ovenden, Halifax. Eleven entries. *Chickens.*—Prize, F. Hardy, Bradford. Ten entries.

Hamburgh (Golden-spangled).—First, H. W. B. Berwick, Helmsley. Second, H. Adams, Beverley. Seven entries. *Chickens.*—Prize, J. Dixon, Bradford. Five entries.

Hamburgh (Golden-pencilled).—First, J. Milner, Armin, Howden. Second, W. H. Dyson, Swap Farm, Bradford. Four entries. *Chickens.*—Prize, S. Smith, Northowram, Halifax. Six entries.

Hamburgh (Silver-spangled).—First, W. Cannan, Bradford. Second, J. Dixon, Bradford. Five entries. *Chickens.*—Prize, J. Dixon. Two entries.

Hamburgh (Silver-pencilled).—First, W. Cannan, Bradford. Second, J. Dixon, Bradford. Three entries. *Chickens.*—Prize, J. Dixon, Bradford. Two entries.

Poland (any variety with or without ruffs).—First, W. Cannan, Bradford. Second, J. Dixon, Bradford. Six entries. *Chickens*,—Prize, J. Dixon, Bradford. One entry.

Any Distinct Breed not Previously Mentioned.—Prize, H. Hodge, Hull. Four entries. *Chickens.*—Prize, W. Dawson, Hopton. Four entries.

Bantams (Black or White).—First, J. Dixon, Bradford. Second, J. Crosland, jun., Wakefield. Six entries.

Bantams (any other colour, not Black or White).—First, J. Crosland, jun., Wakefield. Second, J. Dixon, Bradford. Nine entries.

Spanish Cock.—Prize, J. Dixon, Bradford. One entry.

Dorking Cock.—Prize, H. W. B. Berwick, Helmsley. Two entries.
Cochin-China Cock.—Prize, W. Cannan, Bradford. Three entries.
Game Cock.—Prize, T. Dodds, Ovenden. Five entries.
Hamburgh Cock (Golden-spangled).—Prize, J. Dixon, Bradford. Five entries.
Hamburgh Cock (Golden-pencilled).—Prize, W. H. Dyson, Swap Farm, Bradford. Six entries.
Hamburgh Cock (Silver-spangled).—Prize, J. Dixon, Bradford. Two entries.
Hamburgh Cock (Silver-pencilled).—Prize, J. Dixon, Bradford. Two entries.
Gander and Two Geese.—First, R. Tate, Driffield. Second, J. Dixon, Bradford. Three entries.
Ducks (Aylesbury).—First, Mrs. E. Fidler, Stokesley. Second, R. Tate, Driffield. Five entries.
Ducks (Rouen, any other breed not Aylesbury). First, G. Crowther, Moor Allerton. Second, S. Pickard, Dirtcar House, Wakefield. Eight entries.
Turkeys.—First, J. Dixon, Bradfo.d. Second, R. Tate, Driffield. Three entries.
Extra Poultry.—Prize, E. Appleyard, Elm House, Thorn. One entry.

PRECOCIOUS DORKING PULLETS.

I see an account of a Grey Dorking of 1860, laying an egg on the 20th June, which seems to be thought wonderful. I beg to inform Mr. Watson that we had *chickens* on that date from pullets of this year.—N. Fergusson Blair, *Inchmartine, N.B.*

PRIZE PEN of BUFF BANTAMS at BEVERLEY.

Is this fair poultry dealing? I see an advertisement in The Cottage Gardener offering for sale *the* pen of Buff Bantams which took the first prize at Beverley.

After ascertaining that they are still to be had, I send the advertiser the sum asked, and receive an answer from him saying, that "*the pen* of Bantams is sent off."

The "*pen*," however, on its arrival turned out to be *Buff hens* and a Black-breasted Red Game Bantam cock!

I write to inquire how this is, and am told that the prize Buff cock is dead; but that the advertiser has sent another bird instead.

I write to say, that an imperfect pen is useless to me, and to demand my money back. To this I get no reply at all. After waiting some days my husband writes, giving the advertiser the alternatives of either taking back the whole pen at the original price, or the cock only at 7*s.* 6*d.*

The advertiser writes a slashing reply, abusing your humble servants for being *hasty*, but agreeing to take the cock at the price named, if I would send him the birds before he sent me the money, and also carriage free.

I comply with the first request, but refuse to pay carriage; and he having secured this advantage, deducts 1*s.* for carriage, and returns me 6*s.* 6*d.* I am advised not to appeal to law for the recovery of my shilling. There remains, therefore, only to appeal to public opinion through your columns.—E. C.

[We have the names of all the parties in the above transaction; and if the statement contains all the facts of the case, and we have no reason to doubt it, the vendor ought not to have sent the Bantams to "E. C.," without her consent; and he ought not to have deducted the carriage which was occasioned by his own mis-doing. He knew very well that he had no justification for sending a Black-breasted Red Game Bantam cock with Buff hens, and he ought to return the shilling, and be well satisfied that he has not to pay for a lawyer's letter.—Eds.]

LIGURIAN COMBS—SIZE OF CELLS.

Being desirous of ascertaining whether Ligurian bees really constructed combs with larger cells than the ordinary species, I made two artificial swarms of pure-bred Ligurians, one on the 7th, and the other on the 11th inst. Having waited until both hives were nearly filled with comb, I, yesterday (24th July), examined them and carefully measured the diameter of their cells. The result is, that they exactly correspond in size, as well as in every other respect, with the combs formed by the common honey-bee. Of course, there still remains the possibility that these bees may construct unnaturally small cells owing to their having been themselves dwarfed by being bred in cells of the usual size. I am not, however, disposed to concur in this supposition, since I could not perceive that the workers sent to me direct from Switzerland were at all larger than those bred in this country; and I am also of opinion that Nature would impel them to construct cells of a size suited to the full development of their species, even after they had themselves been bred in the combs of the common bee. Nearly all the combs were complete masses of brood, mostly sealed (some amongst it being drone-brood), afforded satisfactory evidence of the extraordinary breeding powers possessed by Ligurian queens.—A Devonshire Bee-keeper.

THE BEE SEASON—NOTES FROM AN APIARY.

Since my last communication the weather has been very cloudy and variable. I weighed some of my stocks of 1858, and found them all extremely light. There is likely to be a little made up, as the season is full three weeks later than last year. The lime trees have been in full blossom here since the 15th, and will last a week longer. In 1859, they came into blossom about the 24th June.

It must be a very favoured locality where bees will not require feeding in the coming winter. My two best stocks are full 20 lbs. each lighter than they were in October last.

Bees Deserting the Hives.—One of your correspondents mentions a case of desertion. I have had a great many desert from various causes. First. From over deprivation of their combs. These went into a chimney and perished. Second. From being put into a hive (a swarm), which was partly tied together with a fisherman's tarry twine. Third. From damp getting in and mildewed combs in consequence. Fourth. From losing their queen at certain seasons.

The swarm left the tarry-twine hive the next day at noon, leaving a small piece of comb made, but clear of the tarred twine. They settled on the butt of a tree and were hived in a wooden box.

I never knew a desertion from an old stock, such as that mentioned by "H. M.," where bees did not look out a hole in a wall, a chimney, a hollow tree, the roof of a church, or some such place previously. I never saw nor heard of such a desertion as that mentioned, so I have got a wrinkle. Many years ago, I saw an account of an early swarm, on the 29th March; on inquiry of the owner, near Bristol, he wrote me a very polite letter, and informed me that the bees had deserted from the combs being completely riddled by the Honey Moth. The bees were lost.

Bees will desert a hive which has anything offensive in it—a dead mouse, or being overrun in winter by field mice. When bees desert they go much more quickly away, and much more in a straight direction than when they swarm. I never knew or heard of a desertion from an old stock that the bees did not perish should they go into a strange hive. They are generally destroyed by the invaded bees.

I have had several swarms come out this season and return, as you observe in The Cottage Gardener, July 24th, No. 617, no doubt occasioned by the weather. But the temperature has been on the average for the last six weeks 15° lower than at the same period in 1859.—H. W. Newman, *Hillside.*

OUR LETTER BOX.

Sussex Show (*W. R. E.*).—It is contrary to all editorial propriety to reveal needlessly the name of an anonymous correspondent. We do not know the gentleman you name.

White Bantams (*J. Crossland, jun.*).—We have no doubt that you are well acquainted with the points required in these birds; but it is also certain that there are two varieties—the clean-legged and the booted, and if a Judge considers a pen of the latter superior to a pen of the former, we cannot condemn him for awarding to it the prize. It only points to the necessity for two separate classes with equal prizes being established at Poultry Exhibitions.

Hen with Swelling in Foot (*Fazakerley*).—The substance with roots extracted was a corn. Corns are occasioned often by narrow rough perches, especially if placed high. Anything that cramps and bruises the sole of a fowl's foot is apt to cause corns, and thickening of the skin and flesh, popularly known as "bumble-footed." Adopt broad, smooth, low-placed perches.

LONDON MARKETS.—August 6.

POULTRY.

The supply increases, the demand becomes less daily, and prices fall in proportion. Trade will, in all probability, be bad for the next two months.

Each—	s.	d.		s.	d.	Each—	s.	d.		s.	d.
Large Fowls	5	0	to	5	6	Turkeys	0	0	to	0	0
Smaller Fowls	2	6	,,	3	6	Guinea Fowls	3	0	,,	3	6
Chickens	2	3	,,	3	0	Pigeons	0	8	,,	0	9
Geese	6	0	,,	6	6	Hares	0	0	,,	0	0
Goslings	0	0	,,	0	0	Leverets	4	0	,,	5	0
Ducks	0	0	,,	0	0	Rabbits	1	4	,,	1	5
Ducklings	2	9	,,	3	0	Wild ditto	0	8	,,	0	9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	AUGUST 14th—20th, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
14	Tu	Peucedanum silaus.	29.817—29.812	74—53	S.W.	.42	46 af 4	23 af 7	4 1	27	4 22	227
15	W	Sison amomum.	29.906—29.640	69—41	S.W.	—	48 4	21 7	29 2	28	4 11	228
16	Th	Pimpinellas, three species.	30.126—30.084	74—48	S.W.	.04	49 4	19 7	sets	●	3 59	229
17	F	Duchess Kent born, 1786.	30.151—30.051	71—54	W.	.01	51 4	17 7	13 a 7	1	3 46	230
18	S	Parnassia palustris.	30.064—29.991	74—52	S.E.	—	52 4	15 7	30 7	2	3 33	231
19	Sun	11 Sunday after Trinity.	30.106—30.068	82—50	S.E.	—	54 4	13 7	46 7	3	3 20	232
20	M	Linum radiola.	30.153—30.070	83—48	E.	—	55 4	11 7	6 8	4	3 6	233

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 73.1° and 51.5° respectively. The greatest heat, 92°, occurred on the 15th, in 1842; and the lowest cold, 39°, on the 15th, in 1838. During the period 136 days were fine, and on 95 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Broccoli, the latest crops to be planted out, if not yet done. *Cabbage*, make another sowing about the end of the week to stand in the seed-bed through the winter. A late sowing sometimes comes in very useful. Also, make a sowing of Red Dutch for summer use. *Cauliflowers*, make a sowing for plants to stand the winter. *Celery*, previous to earthing up the first time, give the trenches a good watering, as the plants will not receive much benefit from its application afterwards. The whole of the leaves to be kept close together at the time of earthing up. *Dwarf Kidney Beans*, continue to keep closely gathered; if they are allowed to run to seed most of the later blossoms will prove abortive. *Lettuce*, sow largely for standing through the winter. The Brown Cos, Black-seeded Bath Cos, Green Cos, and Hardy Hammersmith are good old sorts for sowing at this season. Plant out from the late sowings for autumn use. *Onions*, if the main crops have long necks the tops to be broken down. Pull up those that have done growing, and dry them for housing. *Radishes*, make another sowing of Black and White Spanish, and also of the Turnip-rooted sort. *Tomatoes*, let the forwardest of the fruit be fully exposed to the sun. Remove some of the leaves that shade it. Keep all the shoots stopped when there is sufficient young fruit on the plants. If over-luxuriant their growth to be checked by merely cutting the roots with a spade about one foot from the stem all round; the spade to be pushed down and drawn out without disturbing the soil.

FLOWER GARDEN.

It will be necessary to go over the flower-beds, frequently pegging down, removing decayed flowers, and cutting back the shoots that encroach upon the grass or gravel. Keep climbers on walls within proper limits. Large evergreens intended for autumn removal to be prepared for the purpose by digging a trench around the tree nearly to the depth of the lowest roots. Keep gravel-walks perfectly clean and smooth by weeding, sweeping, and rolling, as may be necessary.

FRUIT GARDEN.

The prevalence of damp, cloudy weather is causing an excessive amount of growth in fruit trees, and unless they are bearing heavy crops it is advisable to go over the trees, and to stop the strongest and those that incline to grossness, to divert the sap into the weaker shoots, which will be strengthened, and the buds on the shoots that have been stopped will become full and plump without starting into growth. But if the root action is so great as to start them into growth it is advisable, after the fruit is gathered, to open a trench at a moderate distance from the stem of the tree, and cutting the stronger roots. The Strawberry plantations, intended to stand for next season, to be attended to, cutting off and clearing away the runners, to allow plenty of room for the free action of sun and air to the leaves.

STOVE.

Any of the Orchids showing signs of ripeness in the leaves and plump pseudo-bulbs to be removed from the excitement of the growing-house to a more moderate temperature, where the average may range about 60°, and where they will require but a very moderate amount of atmospheric moisture.

GREENHOUSE AND CONSERVATORY.

The continuance of unfavourable weather will necessitate an early return of tender plants. Those allowed to remain outside should be carefully examined that they do not suffer from defects of drainage or the presence of worms. Continue to shake out of their pots the Pelargoniums that have been cut down and have commenced to grow, repotting them into others of smaller size. Look well after late-flowering things—such as Heliotropes, Scarlet Geraniums, Petunias, &c., that are now, most probably, potbound, and will in that state, by attention to watering, produce an abundance of blossom until the last month of the year. Achimenes, Clerodendrons, and other such stove plants in flower, here require attention to prevent injury from damp, and to be gone over every day in cloudy weather, carefully pulling off decayed leaves, &c. Collect the different sorts of soils for pot purposes; to be stacked in a dry place, with a free circulation of air.

PITS AND FRAMES.

Melons will require close attention; for the season has been anything but favourable for their culture. The late plants to be kept thin of wood, and no useless spray to be allowed to crowd the principal shoots and leaves. A regular bottom heat to be kept up, to obtain sufficient atmospheric warmth to allow air to be given for a few hours every day. The plants to be kept free from insects, and every decaying leaf to be removed. Care to be taken not to allow the soil about the collar of the plant to get too damp, which at this season is apt to induce canker. Take advantage of every opportunity to put in cuttings, and to use dispatch with this work until there is a good stock put in of *Flower of the Day* Geraniums, and other such plants that are difficult to winter, except in well-established plants.

W. Keane.

HAMPTON COURT GARDENS IN 1860.

The comfort which gives the most consolation to man or woman, who is vexed with disappointment, or is very much "put out" without being at all vexed, is to know that every one else is just in the same way from the same cause. And to comfort and console is the reason for my going to see Hampton Court Gardens this week, and purposing to visit Kew Gardens the week following. I did have a flying look at Kew, on my way to the Chiswick Experimental. Mr. Craig was then down in that most dreary region at the bottom of Buchan, where all plants meet with the severest ordeal which any plants can experience in any part of Her Majesty's dominions; but

whether he was looking for consolation, or for a farm, they did not tell me. I met Sir W. Hooker along the arboretum, and judging from his looks all was right a-head of me; but he, too, expressed his belief that they were not worse off than their neighbours. Then, said I to myself, we must see them all, and see the difference, if there be any, and off I went to Hampton Court to begin with.

It is over two years since I have been to Hampton Court, but I can see it every clear day without going over the threshold. Since then they have made and finished the greatest improvement that was needed there when Mr. Donald took to the reins—I mean the mucking of Geordie's byre, in the immediate front of the Palace as you first enter the Gardens, which, when I first went there, six or seven years back, was one mass of Wormwood Scrubs, or scrubby belts of the most hungry-looking, and most seedy and weedy in appearance of all the scenes I ever saw within a garden fence. As you went to the right or left the scene began to improve at every step, leaving one to assume the reason for the first unfavourable impression to have been left there on purpose to kill the lines of Yew trees between the Palace and the lakes as soon as possible, and thus to convert the original to the standard of the present taste in laying-out gardens. Gradually, and with great care and taste, all that has now disappeared, the old Yews are recovering the colour and vigour of their youth, and this has been a godsend season for them.

But what about the flowers? Why, they are as well off as their neighbours, and you hear no grumbling. They, the ruling genii, have made great improvements since last I saw them, and such improvements as will suit you just as well. One great improvement has been forced on the gardeners of Hampton Court, whether they desired it or not—namely, the kinds of plants that will grow, and bloom well, and look good under the full spreading Yew trees, or other trees whose roots encumber not the surface, but not *sub tegmine Fagi* this time. The good of this improvement is, that one can assist any old favourite tree in a garden, by digging down carefully to the roots, and by making, as it were, a perpetual mulching over the roots, to encourage young roots from them up to the surface, and to allow passage for the air to get to all the roots; then, to do away with the idea of mulching or disturbance of any kind, just make a flower-bed under the tree—and here are the flowers that do and prosper under the shadow of great trees. Or, if that be too much of a good thing, have your own way, and plant only such plants as never bloom, or need never bloom, to give them effect there or anywhere else—and here, also, are the plants to choose from. But if you are on this side of the water, and could call to see the place, it would tell and pay better than what I say; and for that I shall have to pay for my temerity before it all ends. And as I may as well pay for a sheep as a lamb, I shall tell the whole story, and recommend it with all my might and influence. Without going back to the old Dutch style of gardening, there are few good gardens or pleasure-grounds in which some tree or trees exist under which the ground is never seen tidy: if it is grass, it is patchy; or if it is a pretence for shrubs, they, too, look as of the Wormwood Scrub family, and as a harbour for anything but that of the right sort. But to bring the whole to a regular system, some of the most appropriate plants cannot well be used; for, whatever the plants, they must bear transplanting every year, just like bedding plants, in order to accomplish the aim in view—the improvement of the tree by the bed of mulch, and the beauty of the scene from an appropriate covering to the mulch, so to speak, of a plan which is little different from a yearly stirring of surface soil over the roots of fruit trees, and keeping it from being unsightly. The old Tutsan, or St. John's Wort, *Hypericum calycinum*, is the most permanent plant to use for such a purpose; and one whole bed of that plant has been made here by Mr. Donald under one of the trees which required less help; so that, if the plants are taken up once in three years to get the soil well stirred for the use of the tree, it will be sufficient, as that St. John's Wort is not easy to transplant without suffering more or less from the transplanting. Under another of the old Yew trees is a large square bed (all the beds in this style of Dutch gardening are squares) planted with the large blue *Iris Germanicus*, which looks green and healthy the year round, and gay enough while in bloom; and the plants can be taken up and parted every spring without hurt or hindrance. Another similar bed is filled with the Ribbon Grass, called also Gardener's Garters, Painted Grass, Indian Grass, and Ladies' Laces, *Arundo versicolor*. This looks better under a tree than not, and is renewed every winter or spring. But the best plant of all for under trees, and for mixing with equal quantities of *Flower of the Day*, or any similar variegated Geranium in the open beds is the old *Stachys lanata*, with its thick, soft, fleshy leaves, covered with a white silky down, as with lamb's wool, the stems and the whole plant being so clothed. This is by many degrees the best plant that has yet been redeemed from the old shrubbery-borders for the use of the gayest parts of the flower garden and the most telling. There is nothing now in the three kingdoms one-half so telling as several large beds of that mixture at Hampton Court, and yet there is hardly a bloom on the variegated Geraniums in those beds; and any nurseryman who can muster up 10,000 plants of *Stachys lanata* for bedding out next spring, will receive the whole strength of all my resources for putting them first foot foremost all over the three kingdoms, also across the water to New York; for here is a perfect substitute for our variegated Geraniums, which all the sun of all the States will neither flag nor impair, and which will do in ribbon-lines there as *Cerastium tomentosum* does with us.

Neither here nor at the Crystal Palace have the gardeners yet hit on the right management of the Variegated Mint; but at Kew they do it to perfection, as we shall see next week, if we live so long. But, again, another capital hit here is one more white woolly-leaved plant from the old stores, which does the thing in style for under the trees, and for open day work, and for working in with *Flower of the Day* in the same off-hand manner as the lamb's wool Stachys, which, by the way, is a native of Siberia, and is hardy enough to stand on the roof of the tubular bridge over the St. Lawrence, and so clothed that the sun could little effect it even there. This other woolly plant is *Gnaphalium margaritacea*, as it used to be called in the shrubbery; but *candidissimum* has been applied to it; also, *Antennaria margaritacea*. Mr. Donald has beds of it as regular as a bed of well-done Verbenas, all the branches being regularly pegged down. It lasts a long time in bloom, and is as white all over as the driven snow. The frosted silver plant is a fool to it in that respect.

Well, but there is another plant which actually does better under one of these trees than you could imagine. It was sent to me, or recommended by the gentleman who first drew our attention to the Variegated Mint. It is *Lamium maculatum*, almost a native weed; but see it done as it is managed here, and you might take the bed as a figure out of Euclid, or just out from a royal toilet; but in a hot season it might not require so much from the hairdresser, or the lady's maid either.

Thy *Chrysanthemum regalium pleno* has done well there this season. It is closely trained like all their bedders. The ground being dead level, or looking so, though Mr. Donald maintains that all the beds on it should look level on the surface—even beds of standard Roses to be so matched, that looking across any one of them it should give an even surface.

The Perilla has done better than ever this season. The *Calceolaria integrifolia*, the old species from Peru,

has been the best here this season, and the best to stand against their disease which has been troublesome this season. The Petunias have gone—goodness knows where, but they are not there.

The variegated Geraniums look uncommonly healthy, but with little bloom. *Tom Thumb* is the best of them all; *Cerise Unique* next best; then *Brighton Scarlet, Magnum Bonum, Punch, Surprise,* and *Mrs. Mayler.* The two last are very strong growers, and *Mistress* is to be discharged without a character. I have *Surprise* in the sixth generation as true from seeds as any Cape species whatever, and still retaining a curious trait in the original, six generations back. But now I can tell the origin of two species certain, and of three genera out of one species certain also. Mr. Donald put three distinct genera and two very distinct species growing upon one root into my hand—*Glyce maritima variegata, Königa,* ditto ditto, and *Alyssum maritimum*—as true as *Mare Magnum* of the Romans, and as true as all of them came out of one seed in the garden of the rectory at Surbiton. And so you can cross the three on one flower, and prove superfœtation after all. No doubt of it! I have seen a Duchess taking down *Königa maritima* from a large tally in a fine flower garden, and I recollect a housemaid and a shoemaker's wife ready to volunteer it about the "pronouncement" of *Glyce maritima variegata* on a tally within sound of Bow bells, and I have known men sound as Mr. Darwin countenance such tom-foolery, but I never grumble myself, I only talk about it.

The complete arrangement for the beds could not be effected, owing to the cold weather having destroyed so many of the plants; yet the general appearance was very good, owing to the high keeping of the grounds and the artistical style of managing the beds, by which not a leaf seemed out of place. But a few of the beds may be stated as in first-rate style. The first opposite pair in front of the Palace were thus planted—Two rows of variegated Alyssum; two rows of *Purple King* Verbena; two rows of yellow Calceolarias; two rows of *Purple King* again; two rows of variegated Alyssum; and two rows of *Tom Thumb.* Next, and under trees, was *Kingsbury Pet,* which is a lovely thing when shaded, but will not do in the full sun. The Ribbon Grass and the old scarlet or shot-silk variegated Geranium; a good bed. *Zelinda* Dahlia, closely trained, very good, but late in flowering. *Tom Thumb,* under trees, better than in the sun. Most Geraniums the same. Verbenas *Madeleine, Lord Raglan,* and *Ariosto,* the best three to grow and bloom this season, the latter a Mulberry purple; *Madeleine,* a Heliotrope colour; and *Lord Raglan,* a refutation of the idea that a large white eye is against any bedding Verbena—quite the contrary, though not essential to a good bedding flower, as witness *General Simpson,* one of the best telling Scarlets without an eye. The beds are about five yards one way and six yards the other, and I should think there are over three hundred of them. They must swallow an immensity of plants; and in a season like this, when whole beds and half the beds must be filled a second time, the labour and anxiety must be awful indeed.

There are whole beds of Perilla. All the Lobelias have failed more or less. *Verbena pulchella, pulchella alba,* and the variegated forms of it are doing much better than the large kinds. *Verbena Sabiniana,* which I have not seen for the last twenty years, is there in mass; *Tweediana* also. But who can hunt up *teucrioides* for me, the sweetest of them all? *Mangles' Variegated* Geranium has done well here, and everywhere I have been. *Campanula Carpatica* (blue) is one of the best beds under a Yew tree; the flowers are twice the usual size, and in one complete mass. This, also, is first-rate in the shade. *Lantana crocea,* all but starved. Two hundred and fourteen yards of *Geranium Brilliant* in one straight ribbon-row, by the side of a shrubbery-bed of that length, were splendid; another row on the other side of that bed the same, and yet there is only one bed of Geraniums in the whole garden; they are all Pelargonium-beds, except the bed for *Geranium sylvestris*—a noble-looking mass when fully in bloom. The blue *Geranium Sibirica* is being prepared for such another start. Beds of the spring-flowering Iberis—as *saxatile, sempervirens,* and *Tenoreana* being all low, tidy, evergreens, are left undisturbed all the summer; and variegated somethings in flower to mix with them for the rest of the season are a good move.

There was a mass of huge Lavender plants in the old Wormwood Scrub of a shrubbery in front of the Palace, to please the survivors of the Georgian era by rubbing it through their fingers and smelling them; and to bring down the happy idea to our days, Mr. Donald has made a whole bed of the prettiest little bushes of Lavender you ever saw, just six inches high, and from four to six inches through, as green as Spergula, and as tidy, and with an equal quantity of *Dandy,* or the *Hon. Lucy Kerr* variegated Geraniums. This will be a model bed for such large places. This *Hon. Lucy Kerr* is a gem of a Geranium, and was obtained by Mr. Donald's own industry—a dwarf, fine bedder, with the flowers of *Cerise unique* in miniature. He, too, is a cross-breeder, and a Darwinian to boot, also the best British botanist and cryptogamist among all our gardeners; and he is a fossil flora collector. His herbarium of British plants is very nearly complete, and between him and the author of "Cybele Britannica," who was my surety for my first tenants, and my intimate next-parish neighbour, I hope to be able to give the use and origin of all the Spergulas some of these days; but I lost my chance of that acre between two stools. While the friends of progress were fumbling for their five-pound notes for me to go to market with, and before I had only one of them in hand, another man, good luck to him, stepped in and bought up all the plants I looked out for the job, and jobbed me out of them as clean as a whistle; and very soon you may probably see me in his advertisements with my thumb in my mouth, for I was never so completely done for.

But I was well nigh slipping the best part of the story; and now, what would you say to a bed five yards by six yards full of London Pride, and *Dandy* Geranium, plant for plant? *Dandy* to be taken up, of course, in October, and put back in May, when the London Pride is in feathery bloom, to screen it from the sun and glare of the outer world. There is a large patch of the *Tom Thumb* saved from the sports of *Brilliant,* which Mr. Donald affirms will back up one of Mr. Darwin's origins, or promulgations, I forget which; but there they are, and also the origin of Mr. Kinghorn's *Anne* Geranium, which he never told us of. It is, or was a sport from *Compactum superbum,* and another batch of that *superbum* is on hand also; but for the origin of sport commend me to a far distant scene, to a precipitous-sided Highland corrie.

D. Beaton.

CHELONE BARBATA.

I wonder that none of your writers take any notice of *Chelone barbata.* It is a very graceful and ornamental plant for the border, and stands the winter. It should, however, to cause it to throw up its graceful stalk of flowers, be lifted and divided into little bits in the spring, when the borders are dug, and when the sprouts from which the stalks come can be easily distinguished. If allowed to stand undisturbed, it is apt not to flower; at least, it is so in this neighbourhood.—Kilmarnoch.

GREENHOUSE ORCHIDS.

(*Continued from page* 284.)

On Blocks.—To the uninitated nothing in culture seems more strange than that flowering plants should grow and bloom on dead logs of wood; and it is one of the amateur's pleasures to show his friends his plants on such blocks, and to explain to

them that such plants grow in their native wilds on branches of trees. I was in company only this week with a traveller who had been in Demerara, and, speaking of Orchids, he told me that when a colony of white ants attack a tree they gnaw away the lower part of the bark, which of course kills the tree, and on that dead tree the Orchids immediately appear, and soon clothe it with their foliage and blossom. He had seen many instances of this remarkable fact when pushing through the uncultivated forests of that part of the world. This fact is confirmed by the state in which Orchids arrive in this country that have been collected by botanists, and sent home.

The branches the Orchids are attached to are always in a dead, dried-up state, showing that the Orchids are not true parasites like our Mistletoe, which live and thrive *in* the tree, but true epiphytes, which grow *on* the tree, drawing their nourishment from the moist air and the dead leaves and twigs collected together in the forks of the branches: hence the ingenious cultivator places his Orchids, or at least such as have been proved to thrive best that way, upon blocks of dead wood.

Various kinds of wood have been tried for this purpose—such, for instance, as the hardy Acacia (*Robinia pseudo-acacia*), Cork branches cut into suitable lengths, Oak branches also, and large branches or stems of the common Elder tree. I have placed the various kinds in rotation according to what my experience as a grower of Orchids for thirty years has proved their merits. Excepting the Cork branches, I prefer the blocks naked—that is, without their bark, chiefly for the reason that the bark as it decays is a harbour for woodlice, cockroaches, and other root-eating insects. Having, then, procured the branches, cut them into suitable lengths and thickness, according to the size of the plants; then procure some copper wire of a moderate strength. Cut it into lengths, make a small loop at each end, and drive a copper nail into the block at each end through the loops. The block is then ready for the plant. Have ready some nice green moss; fix the plant on the upper part of the branch; hold it there, and place some of the moss around it, and then tie the moss and the roots of the plants firmly to the branch with some fine copper wire. With a pair of scissors clip off any loose moss, leaving the plant in a neat tidy state. Then suspend it from the roof, either on a long iron rod well painted, or on large-headed copper nails driven into the rafters. The logs should hang down at least eighteen inches from the glass, so that none of the leaves will be close to it. Here they require no further care, excepting syringing, on which point I shall speak more fully hereafter.

In Baskets.—There are not many species that will thrive in a greenhouse temperature that require baskets; but as there are some which the reader will find grouped together hereafter, I must briefly describe the kind of basket that will grow them best, and the mode of making those baskets. Rods of Hazel about the thickness of a man's finger are as good as any, and most easily procured. The baskets should be made of a size suitable to the size of the plants: one four inches square is suitable for the smallest plants, and two inches increase of size will answer for the next size of plant, and so on as the plants are or become larger.

I prefer baskets made of rods of Hazel, or any other wood most easily procured, to any other material. Rods well dried are better than green ones, because they are not so liable to split. Cut the rods into suitable lengths; pare the ends smooth, and bore holes with a wire borer through each end of the rods. Then cut some copper wire into four suitable lengths, make a loop at one end of each so that it will not slip through the holes; then lay two rods parallel to each other, and upon them lay three others. Nail these to the two rods, and then you have the bottom of the basket in a form something like the bottom of a raft. Turn this over, and then lay two other rods, to form the other two sides. Draw the four wires through the holes at the four corners, and then slip rods alternately down the wires till a sufficient number are laid to form the basket. Then bring the wires together at the top, give them a twist or two, and the basket is finished. Four inches are a sufficient depth for the smallest size, and add more in proportion as the greater size is required, making the rods at the sides and bottom thicker and longer in proportion to the size.

In putting the plants in the basket follow this plan:—Cover the bottom with moss, then put in a layer of the rougher part of the compost, and then place the plant in the middle, and fill round it with the compost exactly the same as for those in pots. Practice will make all this easy enough—much easier than it is for me to describe it. As soon as the plant is placed in the basket give it a good watering, and hang it up in its place.

Watering.—There is no point of Orchid culture that is so important as due supplies of water. Two implements are necessary—viz., the garden-pot and the syringe, and I may add a third, a cistern. The first is to be used for plants in pots, the second for blocks, and the third for both blocks and more especially baskets. In applying this necessary element, due regard must be given to the state of the growth of the plants. In pots, water should be given in small quantities at first, and always with the chill off. When the growths are young give water round the edges of the pots so as not to wet the young shoots. Afterwards when the pseudo-bulbs are half swollen, give water more freely, and when they are nearly full grown, give water abundantly to cause large and free growth. Then, when the pseudo-bulbs are fully grown, begin to reduce the quantity of water, and gradually lessen it till symptoms of rest are perceptible. After that only give sufficient to keep them from shrivelling. Let the same ideas guide the cultivator in using the syringe. Plants on blocks when growing should be syringed morning and evening; but when the growths are young, and the days short and dull, syringe only in the morning. When the plants on logs are at rest, once a-week will be sufficient to keep them from shrivelling.

Plants in baskets should be taken down, when growing, every other day, and dipped in the cistern; and many plants on logs will be benefited by a bath in water occasionally in addition to the daily syringing.

In dry, dusty, hot weather, a due supply of atmospheric moisture should be attended to constantly. This may be attained by wetting the floor and walls. In such weather the plants will be greatly benefited by washing the leaves once a-week with a wet sponge. This cleanses the surface and clears the pores of the leaves, also keeps down various insects—such as red spider, scale, and thrips, and also gives a freshness and tidy appearance to the plants. Nothing looks more untidy and careless than seeing leaves covered with dust, green moss, or any other kind of dirt. This sponging is beneficial at any time of the year; only in winter, or when the plants are at rest, squeeze the sponge very hard before using, in order that no water may lodge in the hollows of the leaves. When the plants are in bloom, then the syringing must be dispensed with, as the flowers are easily spoiled by the application of water over them. T. Appleby.

(*To be continued.*)

CORNUS SUECICA—THE SEASON AND ITS CONSEQUENCES.

I see in The Cottage Gardener, No. 613, page 202, the following answer to a correspondent:—"Dwarf Plants for a Rockery (*E. D. S.*).—The species of plants of dwarf habit suitable for rockwork are very numerous, and may be easily procured from any respectable nurseryman, &c."

In the list of plants "easily procured," I see *Cornus succisa.* Is *succisa* a false print for *Suecica?* If it is, I shall be very much obliged to the gentleman who answered "E. D. S.," if he will give me the name of any respectable nurseryman from whom I can procure it—*i.e.*, from whom I can procure a *strong* plant. I have made many inquiries about it, and have had two or three plants sent to me, consisting of one or two bulbs; but I have not been able to keep them. I have applied to several, indeed to many, professional gentlemen, and to amateurs in England. Application has been made at nurseries or gardens at Inverness, Aberdeen, Glasgow, and Dublin, still *Cornus Suecica* is upon my list of desiderata.

I used formerly to cultivate and propagate this plant without any difficulty, so that I had many pots of very healthy plants; but at last I lost all my plants in one or two seasons; and since that time I have had no success with this Cornus, though I am not conscious of having made any change in my treatment of it. The same is the case with many other plants. This is to me most unaccountable.

I think it is probable that you never experienced a summer much colder than the present. I am now (August 3rd) writing by the fireside, and at the same time looking out upon the hay-cocks in my meadow. But I remember a summer much colder, much wetter, and in all respects much more inclement than the present—viz., that of 1816. In that year the corn in this neighbourhood was not all carried till the middle of October, and in some places it was, I believe, left to rot in the field. There was ice on the 6th of June, and again on the 3rd of September.

I am sorry to say that the Potato disease seems this year to be

more virulent than ever. The winter destroyed almost all my Broccoli, Brussels Sprouts, and even Savoy and Scotch Kale. My Bays are cut down almost to the ground. *Arbutus unedo* is a good deal injured, some of the branches are dead, but others are not much hurt. They have formed shoots which are already, perhaps, three or four inches long. I have but one Laurustinus, and that is not much cut; but then it is in a sheltered situation, protected by an Apple tree. Broad-leaved Alaternus very little hurt. Broad-leaved Phyllirea not at all hurt. Cypress (*Cupressus sempervirens*) not much more injured than it sometimes is in ordinary winters. My Laurels have suffered scarcely at all; but I see that in some of my neighbours' gardens they are very much cut. *Cotoneaster rigidus* very much injured; but I see that it is breaking from some parts of the old wood. Did the shrubs suffer from the hard frost of December, or from the unseasonable frost of October? I think not improbably from the latter, in consequence of the sap being still in motion at that time; and I have known winter frosts more severe than that of December, which did very little harm to shrubs, which last year suffered severely. The preceding summer, too, was so warm that the wood must have been well ripened. I have a Cedar of Lebanon which is, perhaps, about forty years old from seed; this year a great many of the tufts turned brown, and, in fact, died very soon after they came out in the spring, and the leaves which formed these tufts have fallen off, or are falling off, as the leaves of deciduous trees fall in autumn. Still the tree seems to be tolerably healthy, as new wood of the length of several inches has shot from the extremities of a great many of the boughs. I shall be much obliged to any contributor to the pages of The Cottage Gardener who will account for this phenomenon. Is *Veratrum viride* a common plant? I have it. I believe that *V. album* is sent out from some nurseries under the name of *V. viride*. *V. viride* is a noble plant, it attains to the height of, I think, eight or nine feet; the leaf is large and handsome, but not plicate like that of *V. nigrum;* the flowers are of a very bright green, and concave, they grow in panicles. — Edwd. Simons, *Ovington, Watton, Norfolk.*

OUR COMMON FLOWERS.

I have witnessed with pleasure the increasing desire on the part of our cottagers to become acquainted with the double varieties of some of our British wild flowers. If the following notes stir up a similar desire in the readers of The Cottage Gardener my end will be attained.

Lotus corniculatus plena is one of our cottagers' favourites. Those readers of The Cottage Gardener to whom it is a stranger will easily know it when I inform them that it is the double variety of the common Bird's-foot Trefoil, one of the favourite wild flowers of my childhood. It is a plant well worthy of a place in the front of the mixed border. Some plants of it in a garden not far from my residence, are truly beautiful. It is as hardy as its wild progenitor, and easily propagated by division.

Another favourite, and one well worthy of all the care bestowed upon it, *Spiræa filipendula plena*, the double variety of the common Dropwort of our pastures. A truly ornamental border flower; its feather-like flowers are much esteemed in cottagers' bouquets, and possess a beauty which is rarely to be found in some more esteemed favourites. It may be called an evergreen, for its Fern-like root-leaves rarely die down in winter; but with me in a cold, bleak, situation, it turns brown in winter, but soon comes round in early spring. It is easily increased by root-division.

The last of our cottagers' favourites I shall name at present is *Spiræa ulmaria plena*. The single variety (Meadow Sweet) is called by Martyn the "Queen of the Meadow," a very common plant, very pretty, and always sweet. The double variety is easy to grow in any common garden soil, but likes plenty of moisture. Increased by root-division.—Rustic Robin.

TRAINING SYMMETRICAL FLOWER-BEDS.

At the risk of being somewhat egotistical, I would subjoin a few words on this subject, to avoid answering personally or by letter a number of inquiries as to how the beds here (Luton), exposed to sweeping winds, yet retain through most of the season the regular desired outline, whether of parallelograms, circles, or pyramids. The complaints are general, that after a storm of wind or a heavy fall of rain the beds are sweeped into bundles, or depressed and elevated into hollows and knolls, and that no care afterwards will cause them to assume a pleasing artistic outline. When I frequently see scores of beds, and even in exposed places, merely planted without any attempt at fastening or training of any kind, and but little attention given to the simplest points of culture, I am not surprised that amateurs of refined taste sigh after the old mixed system of flower gardening, and wish heartily that this bedding mania would take itself off and number itself with other manias that had their day and were heard of no more. One thing is certain—no plan could have been hit upon for keeping the gardener thoroughly and anxiously employed without any cessation from toil, if the beds are to be made the most of. When we look back to the gardening of thirty years ago, with its hundreds of pot plants, we may well think that the jolly gardeners of those days would shake as if in an ague fit, could they see what thousands of plants must annually be raised, and grown, and trained in these flower-beds.

This season has been peculiarly trying, inasmuch as, judging from myself, the flower garden will be something like three weeks later in attaining the same perfection as last year, if the weather should now be fine. What have flourished extra well with us this season are Calceolarias, which have been in full massive beauty for the whole of July. What have done worst are the Verbenas, with the exception of some long ribbon-rows of *Purple King*. Petunias also did ill with the wet, and are just beginning to fill in the last week of July, being scarcely forwarder than they were last season in the second week in June.

The main particular little points of culture I gave in a short article last season; I confine myself now merely to training and securing.

The first of these has reference to *pegging* down lanky, trailing plants, as Petunias and Verbenas. This, however, is done more for the purpose of filling the beds equally than for securing the plants properly, unless it is desirable to keep the plants very low. In some of the great gardens near London, I have seen plants of natural upright growth, and rising to from fifteen inches to thirty inches in height, pinned down stiffly to a height of four or six inches. Such, in general, is worse than labour thrown away; more especially when, if the plants had been a foot or six inches higher, they would have suited equally well for the position, and the plants, even if pinned down at first, would then have assumed their natural character. Whatever pegging may be resorted to in the first instance, and however satisfactory looking as such pegging them may be, because we see at once what the object is,—all such seen attempts at a period when the beds ought to be at their best detract so much from the pleasure we otherwise would experience.

For pegging, so as to cover the ground, we use great quantities of our *patent* peg. I say nothing against nice pegs made from old brooms, pieces of bracken stalks, &c. The making of them is a pretty amusement; only, that whilst a score were getting ready I should expect a hundred or two of my young shoots to be laid flat on mother earth. I say nothing either against much-praised wire pegs resembling ladies' hair-pins, and own that they are cheap enough and nice things for ladies' and gentlemen's fingers. I do not use them, because a good many hundredweights of them would come to something, and I should not like my hands to be pierced with some rusty ones that might be left at another season's planting. Our pegs are chiefly the superabundant young summer-shoots of Currants, Apples, Pears, Plums, &c. Half a dozen of these are held near the points in the left hand; and the fingers of the right hand being brought down through them removes all the leaves. The soft points are whipped off with the open knife, held also in the right hand; and, as soon as I could write this period, an active lad has got an armful of them in a basket. The basket is taken to the bed. A small handful of these stripped green shoots is held in the left hand. Each shoot will make as many pegs as it is as many times from five to six inches in length. One shoot is taken in the right hand; six inches of it are broken off over the open knife. The two ends of the six-inch piece are brought together; crack goes the centre, but still holding by the underwood and bark, forming the hair-pin; and down go the two ends in the soil over the shoot you peg down,—one and another and another being disposed of in half the time a clever fellow would say "Jack Robinson." We seldom trouble ourselves to save such pegs afterwards, unless they are much larger, for future use; but strong ones we frequently keep for another year. In the early part of the season,

when young shoots are not to be had, we use bits of twigs from Pea-stakes, or anything most comeatable—anything, in fact, fresh enough to crack half way or more through in the middle, and not break through altogether. With the exception of just breaking the lengths over the knife there is no time taken in making; as before, the hand can get from the knife to the ground—the bending and cracking in the middle are effected. I look back with a spice of regret to the good old times when we could sit in a shed for a day making nice hooked pegs, polishing their points as nicely as if they had been bone or ivory bodkins for a sweetheart; but in most places now the man who must depend on such pegs for a large flower garden will find to his amazement that, whilst he loiters on the bank, the stream is rolling past him.

This pegging alone may be sufficient for such things as low-growing Verbenas this season, for in a good many places they are not now much taller than they were in the beginning of June; but in general seasons we find that pegging is not sufficient to keep the plants regular in their outline for the season. For this purpose we use twigging the bed all over, sticking little pieces of old brooms, &c., thickly over the bed, and tying a few shoots to them at first. The twigs should be lower than the anticipated height of the plants, so as not to be seen when the beds are full grown. If seen before, the apparent utility speaks of its appropriateness. The plants get so interlaced among these twigs, that wind and rain, though they injure the flowers, cannot break up the symmetry of the bed. Of all wood for this purpose, we prefer branches of Spruce that have lain long enough to lose the foliage. The little twigs act as so many holders. I am afraid to say how many years I have had some of these Spruce twigs—the resin preserves them. I also use Larch branches, or, in fact, wood of any kind; but pieces of Hazel, or what is generally used for Pea-sticks, is generally not worth saving for a second year. We dare scarcely leave a single bed without being secured by these twiggy branches, ranging from twenty inches, used for a dwarf Dahlia, to six or eight inches for the dwarfest Calceolarias and Geraniums. The trouble is great, of course, but it is better to have fewer beds than to have a great many that are not symmetrical in outline.

I do not pretend to be any authority in such matters; but, so far as I understand it, I believe that a grouped bed should be rather picturesque than particularly artistic — in other words, that a bed, if of one thing, should, on the whole, look like one plant rather than a collection of single specimens of that plant. Some time last year I saw a large circle filled with Scarlet Geraniums, planted uniformly in rows, and some fifteen or eighteen inches apart across the bed. From whatever point you looked at the bed, these came in the straight files of scarlet grenadiers. When you came near the bed, you found almost every plant a specimen in itself and an open space all round. Each plant, in fact, was a mass of green with a red top to it. Now, in the first place, if such a bed had been planted in circular rings instead of lines across, the file-like appearance would have been removed; and, secondly, if with no thicker planting some of the larger, grosser central leaves had been removed, and the shoots, instead of being in bundles, had been kept out by means of twigs or large pegs, the whole bed would have been covered with flowering-shoots so as to look like a single specimen. For a month or so, some of the extra-sensitive people, whose nerves are shaken by seeing even a stone, or a larger clod than usual, on their dressed, smooth-raked and too often hard-crusted beds, would be horrified at seeing these rough-looking twigs; but sensible people at once see something like beauty even in them, because their utility is so apparent. Independently of all such symmetrical effect, I find that in such an exposed place I could not manage to keep the plants from being blown about, and even blown out of the ground, unless by regularly planting several inches deeper, and then in most seasons I should expect a superabundance of foliage and a limited supply of bloom. So much for twigging, in addition to pegging, as a means of training. R. Fish.

THE SCIENCE OF GARDENING.

(*Continued from page* 287.)

For the production of double flowers, a full exposure to light is as essential as an abundant supply of nourishment; for a deficiency of light decreases the decomposing power of the leaves. In proportion to the deficiency of light does the plant under glass become, in the gardener's phraseology, drawn—that is, its surface of leaves becomes unnaturally extended in the vain effort to have a sufficient elaboration of the sap effected by means of a large surface exposed to a diminished light, for which a less surface would have been sufficient if the light were more intense. The plant with this enlarged surface of leaves becomes unfruitful, and produces a deficiency of flowers, the sap being expended in the production of leaves.

Mr. Williams made some experiments intended to illustrate this point, and he found that varieties of the Vine, when grown under white or crown glass, under green glass, and in the open air, had the diameters of their leaves, in inches, altered as in the following table :—

Name.	White.	Green.	Open Air.
White Muscat	8	12	7
Malmsey Muscadine	6½	12	6
Syrian	8	14½	...
White Sweetwater	6	9	6
Black Hamburgh	8	13½	...
White Frontignac	6	11	6
White Muscadine	6	11	6

From the foregoing facts, we conclude that a due supply of moisture, but rather less than the plant most delights in when the production of seed is the desired object, a superabundant supply of decomposing organic matter to its roots, and an exposure to the greatest possible degree of sunlight, are the means to be employed most successfully to promote that excessive development of the petals which characterises double flowers.

By these means a greater amount of sap is supplied to the flower than the natural extent of petal can elaborate; and, following the laws of Nature already specified, those parts required for the extra elaboration are developed at the expense of those not demanded for the purpose. In double flowers, too, as was observed by the late Sir J. E. Smith, the corolla is much more durable than in single ones of the same species, as Anemones and Poppies; because, as he conceived, in such double flowers the natural functions not being performed, the vital principle of their corolla is not so soon exhausted. Advantage may be taken of this to prolong the duration of flowers by cutting away the pistils, or stamens, whichever are least conspicuous, with a sharp pair of pointed scissors.

We will conclude our observations on flowers, by observing that their fragrance is rarely considered as an object of the gardener's care. This is a mistake. To improve the perfume of a flower, to add fragrance by cross-breeding to a kind usually destitute of such a source of gratification, and to render the atmosphere of a conservatory, greenhouse, or stove, more grateful by a due combination of odorous flowers, are objects quite worthy of a gardener's attention, and they are objects he can readily attain.

That cultivation and cross-breeding can intensify the odour of plants, and even impart it to seedlings, one of the parents of which was scentless, all gardening experience testifies. Yet there is a wide field still to be won. Why, for instance, should not a Rose be obtained having petals gifted with the substance and brilliant colour of *Général Jacqueminot*, and the high fragrance of the old *Moss Rose ?*

In tenanting our greenhouses and conservatories, also, there is a notable opportunity for the gardener to prove that there is high art in the combination of odours as well as of colours. In preparing delicate perfumes it is seldom that a single oil, or the parts of one plant only, are employed for the purpose. The art of the perfumer is shown by the skill with which he combines together the odoriferous principles of various flowers, or mingles together many volatile essences, so as to produce a more grateful scent than any single plant can be made to yield. In this way the *huille de mille fleurs* (oil of a thousand flowers) professes to be made; and the secret recipe for the popular *Eau de Cologne*, called the perfection of perfumery, depends for its excellency on the same principle.—(*Report of the Juries of the Great Exhibition of* 1851.)

Odours represent very much the notes of a musical instrument. Some of them blend easily and naturally with each other, producing a harmonious impression, as it were, on the sense of smell. Heliotrope, Vanilla, Orange blossom, and the Almond blend together in this way, and produce different degrees of a nearly

similar effect. The same is the case with Citron, Lemon, Vervain, and Orange-peel, only these produce a stronger impression, or belong, so to speak, to a higher octave of smells. And again, Patchouly, Sandal-wood, and Vitivert form a third class. It requires, of course, a nice or well-trained sense of smell to perceive this harmony of odours, and to detect the presence of a discordant note. But it is by the skilful admixture, in kind and quantity, of odours producing a similar impression, that the most delicate and unchangeable fragrances are manufactured. When perfumes which strike the same key of the olfactory nerve are mixed together for handkerchief use, no idea of a different scent is awakened as the odour dies away; but when they are not mixed upon this principle, perfumes are often spoken of as becoming sickly or faint, after they have been a short time in use. A change of odour of this kind is never perceived in genuine Eau de Cologne. Oils of Lemons, Juniper, and Rosemary are among those which are mixed and blended together in this perfume. None of them, however, can be separately distinguished by the ordinary sense of smell; but if a few drops of hartshorn be added to an ounce measure of the water, the Lemon smell usually becomes very distinct.

The gardener must also keep in mind that some flowers give forth their odours chiefly during daylight, and especially during its most sunny hours. Examples of these flowers are afforded by many of the Labiatæ, the Orange, and the Cistus families. Others, especially such as have dark, lurid colours, such as *Hesperis tristis* and *Gladiolus tristis*, are fragrant only during the hours of night.—(*Johnston.*)

The gardener has also the power to intensify the fragrance of flowers by the soils and manures which he employs. This is almost an untrodden path in his art, but it is well worth exploring, for it would lead to a wide-spread source of additional gratification. That the gardener has such a path to explore is proved by the fact that the delicacy and fragrance of a plant's odour is found to vary considerably with the locality in which that plant has been grown. Thus on the shores of the Mediterranean, near Grasse and Nice, the Orange tree and the Mignonette bloom to perfection in the low, warm, and sheltered spots; while, in the same region, the Violet grows sweeter as we ascend from the lowest land and approach to the foot of the Alps. So Lavender and Peppermint grown at Mitcham, in Surrey, yield oils which far excel those of France or other foreign countries, and which bring eight times the price in the market. This effect of soil and climate on the odour of plants resembles that which they exercise in so remarkable a manner on the narcotic constituents of Tobacco, Opium, and Hemp.

It does not immediately come within our province to consider what is the agent rendering any part of a plant odoriferous, but we may observe that it usually arises from a highly volatile oil, and is often called its *aroma*.

The relation between the colours and fragrance of flowers has not escaped the attention of some botanical physiologists, and the following are the results arrived at by Dr. Landgrebe and MM. Schubler and Köhler:—

As the white-flowering species are most numerous, so are they the most generally odoriferous. Among the coloured flowers, the red have the greatest tendency, and the blue the least, to the formation of odoriferous substances. On the average, there is only one odoriferous species in ten.

If we further separate the species having an agreeable, from those having a disagreeable, smell, we obtain the following results:—

Colour.	No. of Species.	Having an agreeable odour.	Having a disagreeable odour.	Mean in 100 species.	
				Having an agreeable odour.	Having a disagreeable odour.
White	1193·5	755	12·	14·66	1·00
Red	923·	76·1	9·3	8·24	1·01
Yellow	951·3	61·1	14·5	6·42	1·52
Blue	595·5	23·3	7·5	3·91	1·26
Violet	307·5	17·5	6·0	5·68	1·95
Green	153	10·3	2·5	6·73	1·62
Orange	50	1·0	2·0	2·00	4·00
Brown	18·5	0·	1·2	.....	6·48
Coloured flowering altogether	2997·8	189·3	43·0	6·31	1·43

From this table it is apparent that white-flowering plants are much more frequently agreeably perfumed than coloured-flowering; for in 100 white-flowering plants, there are, on an average, 14·6 having an agreeable smell, and only one having a disagreeable; whereas in the same number of coloured-flowering plants there are 6·3 having an agreeable odour, and 1·4 having a disagreeable.

There are, therefore, among the white-flowering plants a greater number of species having an agreeable smell than among the coloured-flowering, in the proportion of 63·146; on the contrary, among the coloured-flowering there are a greater number of plants having a disagreeable smell than among the white-flowering, in the proportion of 10·14.

The individual colours exhibit further the following differences, when the flowering odoriferous species in each colour are reduced to 100 agreeable-smelling species: there are, according to the above relations, in the flowers of 100 agreeable-smelling species—

Having a White colour ...	6·8	Having a Violet colour ...	34·2
„ Red „ ...	12·2	„ Green „ ...	24·2
„ Yellow „ ...	23·5	Of coloured flowers altogether	22·7
„ Blue „ ...	32·2		

The orange and brown-flowering plants seem to possess a larger number of disagreeable than of agreeable-smelling species. Among 4200 species examined, there are two brown plants which are odoriferous—viz., *Delphinium triste* L., and the brownish-red flowering *Scrophularia aquatica* L.; and three odoriferous orange and yellowish-red flowers, the *Nicotiana glutinosa* L., *Alestris uvaria*, L., and *Verbascum versiflorum* Schrad. The last alone has an agreeable smell; the others have a disagreeable odour. It is well known, and not on that account the less remarkable, that the great genus Stapelia, which so frequently exhibits flowers of a yellowish-red or yellowish-brown colour, includes so many species having a disagreeable odour, often like that of carrion; further, that two species, distinguished by their peculiarly offensive odour—viz., the *Arum divaricatum* W., and the *Asarum Europæum*, should possess a dark brown, passing into violet, corolla.

We perceive, then, from these details, that white flowers are, for the most part, and especially, sweet-smelling; but the family of the Cruciatæ is in this respect an exception, for many of the species have non-odoriferous flowers, whereas they possess as a compensation a transient sharpness; as in the genera Cochlearia, Lepidium, Cardamine, Thlaspi, Sisymbrium, Senebiera, &c. Among the monocotyledons, we observe the same thing in the genus Allium.—(*Edin. Phil. Journ.*, *January*, 1837.)—J.

NEW AND RARE PLANTS.

Cyrtodeira cupreata *var.* viridifolia (*Green-leaved Coppery Cyrtodeira*).

It has been called also *Achimenes cupreata*. Native of New Grenada. Flowers scarlet. Bloomed in the stove of Messrs. Henderson, Wellington Road Nursery, in the spring of the present year.—(*Botanical Magazine*, *t.* 5195.)

Habenaria Salacensis (*Salakian Habenaria*).

Native of Mount Salack, in Java. It flowered in the Kew stove during April of this year, but it is an Orchid of no beauty. —(*Ibid.*, *t.* 5196.)

Ixora jucunda (*Mr. Thwaites's Ixora*).

Sent from Ceylon by Mr. Thwaites, where it is found up to an elevation of 4000 feet above the sea's level. Flowers white, first produced at Kew during last May.—(*Ibid.*, *t.* 5197.)

Pentapterygium rugosum (*Rugose Pentapterygium*).

Called, also, *Vaccinium rugosum*. Native of Bhotan and the Sikkim Himalayan Mountains. This beautiful greenhouse plant was sent to Messrs. Veitch & Son, by Mr. T. Lobb. Flowers in pendulous corymbs, creamy white beautifully marked with blood-red waving lines.—(*Ibid.*, *t.* 5198.)

Caladium bicolor, *var.* Neumannii (*Neumann's Two-coloured Caladium*).

It has also been called *Arum bicolor*. Leaves with their discs red-spotted, the spots margined with white. It requires a warm stove and abundance of moisture.—(*Ibid.*, *t.* 5199.)

Rosa sericea (*Silky-leaved Rose*).

Native of the Himalaya. A four-petaled white Rose. Hardy, but does best trained against a wall, blooming early in the summer.—(*Ibid.*, *t.* 5200.)

ENGLISH FLOWER GARDENING IN THE FIFTEENTH AND SIXTEENTH CENTURIES.

(*Continued from page* 290.)

A century later than the period we considered in our last number showed a marked improvement in the attention and taste, in garden arrangements, however opposed to modern ideas of beauty.

Our nobility still dwelt in castles, and these retained the usual defences of moats, drawbridges, &c. This was especially the case the nearer they approached to the Scotch or Welch borders; in the vicinity of London, villas and palaces had long since sprung up. Those which retained all the customary fortifications had gardens within the moat, as well as without, for the orchard mentioned by Leland, in 1540, as existing at Wreshill Castle, near Howden, in Yorkshire, evidently partook of the nature of pleasure-grounds. "The gardens within the mote, and the orchards without, were exceeding fair. And yn the orchardes, were mountes, opere topiorio, writhen about with degrees like the turnings in cokil shelles, to come to the top without payn." (*Lelands Itinerary*, page 60.) King James I. of Scotland, who was confined for some years as prisoner in Windsor Castle, early in the fifteenth century, gives us in a poetical effusion a description of its garden, which similarly intimates to us that it was of contracted space and formal adornments.

"Now was there maide fast by the touris wall
A Garden faire, and in the corneris set
An herbere grene, with wandis long and small
Railit about, and so with treeis set
Was all the place, and hawthorn hedges knet,
That lyfe was now, walkyng there for bye
That myght within scarce any wight espye.
So thick the bewis and the leves grene
Beschudit all, the alleyes all that there were,
And myddis every herbere might be sene
The scharpe green swete jenepere,
Growing so fair with branches here and there,
That as it semyt to a lyfe without,
The bewis spred the herbere all about."
(*The Quair by James I., Edited by Lord Woodhouselee.*)

The contracted size of our pleasure-grounds by degrees ceased to be their reproach, although their style retained the formal features which continued characteristics of them until late in the eighteenth century. In the eighteenth year of the reign of Henry VIII. (1509 — 1546) the gardens of his Palace of Nonsuch, were formed.

"The Palace," says Hentzner, in 1598, "is encompassed with parks full of deer, delicious gardens, groves ornamented with trellis work, cabinets, of verdure (Summer-houses or seats cut in Yew?) and walks so embowered by trees, that it seems to be a place pitched upon by Pleasure herself to dwell in along with Health. In the pleasure and artificial gardens are many columns and pyramids of marble; two fountains that spout water, one round the other like a pyramid, upon which are perched small birds, that stream water out of their bills. In the grove of Diana, is a very agreeable fountain, with Actæon turned into a stag, as he was sprinkled by the goddess and her nymphs, with inscriptions. Here is, besides, another pyramid of marble full of concealed pipes, which spirt upon all who come within their reach."

Mr. T. Hudson Turner remarking upon the same subject and period, notices that our ancestors seem to have been very fond of the green sward, and any resemblance to modern flower-beds is rarely seen in the illustrations of old manuscripts; where flowers are represented so planted they are generally surrounded by a wattled fence. The annexed cut, copied from a manuscript of the fifteenth century, of the *Romaunt de la Rose*, in the British Museum, proves that the ordinary form of the "erbour" has not undergone any change since that age, and it also shows how the "seats and banks of Camamile" or other flowers, referred to by Lawson, were constructed. A bank of earth appears to have been thrown up against the enclosure-wall, the front of it was then faced with brick or stone, and the mould being reduced to an even surface was planted according to the taste of the owner. Numerous illustrations in works of the fifteenth century show that a bowling-alley, and butts for the practice of archery, were not uncommon features in gardens of that date. There is great reason to believe that in this century the style of gardening in England was considerably modified by the introduction of the Flemish modes of decoration, which the connexion then formed between the Courts of England and Burgundy would materially contribute to bring about. It is to this period that we may ascribe the first appearance of "mounts" in English gardens. This ornament was contrived, it would appear, to enable persons in the orchard to look over the enclosure-wall, and in this respect it was analogous to the mound, or *speculatorium*, usually thrown up within the bailey of a Norman fortalice. When the garden happened to be situated in a park, and herds of deer browzed even up to its walls, the mount became useful as a point from whence, as honest Lawson observes, "you might shoote a bucke." These mounts were formed of stone, or wood "curiously wrought within and without, or of earth covered with fruit trees. They were thrown up, as Lawson notes, in "divers corners" of the orchard, and were ascended by "stares of precious workmanship." When constructed of wood the mount was often elaborately painted in gaudy colours. The accounts of the works at Hampton Court in the time of Henry VIII. contain many curious items relative to the decoration of the mounts erected in the garden of that palace, and also of the expenses for "anticke" works there. At the commencement of the sixteenth century the topiary art came into full practice in this country. Lawson who wrote at the close of it, and after an experience of half a century, observes, the lesser wood might be framed by the gardener "to the shape of men armed in the field ready to give battell: or swift running greyhounds: or of well sented and true running hounds, to chase the deere, or hunt the hare. This kinde of hunting shall not waste your corne, nor much your coyne."

HORTICULTURAL SOCIETY'S FLORAL COMMITTEE.—9th August.

A First-class Certificate was awarded to Messrs. Veitch and Son, Exotic Nursery, Chelsea, for *Gleichenia pubescens*, a new stove Fern.

To Mr. Smith, Nurseryman, Hornsey Road, London, for a new variegated Geranium, called *Argus*, one of the best scarlet flowers in this class.

To Mr. Turner, of Slough, for *Elise*, a fine, rose-edged Picotee.

To Mr. Bragg, of Slough, for *Shakespere* Carnation, in the style of *General Havelock*.

To Mr. Smith, Hornsey Road, for *Nemesis*, a deep scarlet-edged Picotee.

Certificates of Commendation were awarded to Mr. Noble, nurseryman, Bagshot, for *Spiræa Nobleana*, a seedling from *S. Douglasii*, with closer flower-spikes of the same colour.

To Mr. Ingram, of the Royal Gardens, Frogmore, for *Lonicera hybrida*, a seedling from *L. Japonica*, with a profusion of fragrant white flowers.

Commendations were given to Mr. Turner, of Slough, for *Favourite*, a heavy, purple-edged Picotee.

To Mr. Bragg, of Slough, for a collection of yellow Picotees, after the style of the *Empress of India*.

To Mr. Keynes, of Salisbury, for *Countess of Derby*, a fancy, deep-mottled Picotee.

To Mr. Smith, of Hornsey Road, for *Purple Perfection* Picotee.

To Mr. Bragg, of Slough, for *Garibaldi*, a yellow-ground Picotee, heavily marked with dull red.

In a collection of Carnations from Mr. Keynes, the three following would be commended if they were shown according to the rules of the Floral Committee:—*Peter Young*, *Poor Sam*, and *Conqueror*.

"CAN A ROSE BE ALTERED BY ITS STOCK?"

A friend of mine called my attention last summer to a Rose he had budded on the old China Monthly Rose. The bud had been taken from *Safrano;* and the result was, a cluster of flowers with exactly the colour and nearly the character of the old China. In other respects there was no mistake as to the origin of the bud.—K.

THE SEASON, AND ITS EFFECTS ON VEGETATION.

Your intelligent correspondent, "The Doctor's Boy," at page 261 asks for information about the weather and its effects on garden crops—a question which I hope will elicit several answers from different parts of the country. I herewith give him and the readers of The Cottage Gardener a description of what it has been at this place (Linton), which is about the centre of the county of Kent.

Commencing with the present year, I may say the winter months of January, February, and March presented nothing very remarkable except the general prevalence of high winds, and alternating changes from rain to frost, snow, and fair weather—in fact, it was to these sudden and continuous changes that the destructive character of the winter is to be ascribed, the frost at no time being very severe. April was dull and wet; and on the 24th of that month we had a heavy fall of snow, followed by rain on the following day, which will long be remembered as the most stormy and wet days known at this season. More mild weather closed the month.

May came in with high winds, dry and cold, followed by rain on 8th, which also fell more or less on every day up to 19th, after which we had a week of fine, sunny, warm weather—the finest, in fact, we have had the whole season; so that by the 26th, when cold rains set in again, vegetation was about as forward as usual at that period. But the latter end of the month being dull, cold, and wet, everything was checked, and a sudden stop put to the growth of all but the most robust vegetation.

June has been the most remarkable month I have on record, rain falling almost every day, and with scarce a gleam of sunshine. The ground got saturated with moisture, from which there was no evaporating medium to relieve it, the days being almost as sunless as those of November usually are. The result was, that many tender things in the garden way perished with the wet and cold. Others remained stationary; and what growth did take place was of that tardy description from which no good result could be expected: the rainfall of the month being 5·09 inches, or nearly as much as that of the same months for the four preceding years; while the average maximum temperature was 16° below that of 1858, and 9½° below that of 1859. This extraordinary state of things was, of course, incompatible with the well-being of bedding plants, or, in fact, any description of plant whatever, except those of the hardiest description.

July came in with greater promise, the first fortnight being dry with some sunshine. But St. Swithin shed his ominous tears upon us; and from the 16th to the end of the month has been a continued series of heavy showers of a thundery character, accompanied by the same dull weather as before; cold nights succeeding wet days, more favouring the growth of weeds and grass than anything else; so that on the 1st August we are in a worse plight as regards the advancement of crops and the general character of things than I ever remember to have been in at the same time. So dull and cold has it been that the Gooseberries are not yet ripe, and in the fields large breadths of hay are still out. But it will, perhaps, be better to speak of the results on some of the more important garden crops individually. I herewith append a few notes on each.

Hardy Fruits.—*Apples.*—The crop in most cases plentiful enough, but the trees unhealthy and the fruit small. Some of the late kinds are thin, but as a rule there was plenty of fruit set.

Pears.—Where the birds did not injure them there will be a fair average crop; but many standard trees were almost ruined by these depredators. The fruit, however, is like the Apples, small and unkindly.

Plums.—Variable, and certainly not so plentiful as last year, excepting on some favoured places.

Cherries.—The quantity has far exceeded the quality here. In fact, Cherries have been poor and indifferent.

Gooseberries.—Generally abundant, but smaller than usual, and the red ones colour and ripen badly.

Black Currants.—Good crop and excellent fruit, better than usual on most grounds.

Red Currants.—Full average crop and fair quality.

Raspberries.—Crop good, but fruit without flavour—a mere puff ball of watery juice.

Strawberries.—The late ones have been very indifferent. The more early kinds were tolerably good, though, like the Raspberry, there was no flavour.

Vegetables.—*The Potato.*—I fear we shall hear sad complaints of this useful root. On dry grounds the crop was promising; but on colder soils it never appeared strong, and recently has been attacked with disease, apparently as badly as in the worst years. The quality of the Potatoes is also bad, and the earliest are yet far from ripe in a general way, so that taking up will not save them.

Peas.—These have in general been double the usual height they are in other seasons; but where stakes have been afforded them, they have cropped well, and Peas have been the most plentiful of our garden crops.

Beans.—Like Peas, these have run up much higher than heretofore; but they are not so well loaded as in some other years; neither are the pods so well filled. Nevertheless, the Bean crop must not be regarded as a failure.

Scarlet Runners.—For a long time weak, they have only just begun to grow with anything like vigour. Their success or failure, however, will depend on the weather that is to come.

Dwarf Kidney Beans.—Sickly, full of gaps, and bad in a general way.

Onions.—Late, and on stiff soils will hardly ripen; otherwise there are plenty of them, and they are not deficient in size.

Carrots.—Crop irregular, but not worse than in some former seasons. The slug was very destructive to the young plant.

Cabbages and *Cauliflowers.*—Where the ground was favourable these were forthcoming, but they have not been universally plentiful. A sort of disease attacked the Cauliflower, and Cabbage plants were much hurt by the winter.

Amongst other miscellaneous crops, those requiring a greater amount of sunshine than we have had this season have suffered accordingly. Cucumbers and Vegetable Marrow have done nothing out of doors; and Shallots and many other things have only made tardy growth, while there has been much difficulty to preserve seed-beds from the attacks of insects, or from perishing with cold. On the other hand, Lettuce and summer Turnips have been good, and Celery will be more forward than usual.

We now come to The Flower Garden, which, alas! shows

unmistakeable tokens of the untowardness of the season—bedding plants and tender annuals perishing by scores in all directions. On the other hand, Roses have been good in a general way, though some of the varieties never showed a good bloom; the continuous rain disfigured or partially rotted them on the trees. Hollyhocks have run up very tall and strong; but at the present time (August 1) there is scarcely an expanded bloom amongst them. Phloxes, however, thrive with the wet, but they do not flower well; and the double varieties of Delphinium have suffered much from the slug prevailing to such an extent. Pinks have in like manner suffered from the wet decaying the flowers; and most other flowering plants have had their usual term of floral beauty shortened by the dull, damp season.

Universal as the complaint is of bedding-plants doing so badly, there are some which seem to endure the rain better than others; of this class the variegated plants stand pre-eminent, the Geraniums forming a nice feature to the deep green turf, which this season, contrary to preceding ones, has never suffered from a lack of moisture. A few remarks, however, on each class will better explain the condition of each.

Geraniums Variegated.—*Golden Circle, Alma, Flower of the Day*, and *Mangles' Variegated* are the most thriving ones in dry weather or wet. *Golden Chain* does, I think, better this year than usual; but it is not at home here. *Shottisham Pet, Silver King*, and *Perfection* are all good in their way, but not sufficiently tried yet. *Brilliant* is not sufficiently marked with white to entitle it to a first place as a variegated bedder, and it likes a drier season than the present one.

Geraniums Plain and Horseshoe-leaved.—These made very little advance at all until the beginning of July, and since then leaves rather than flowers have been formed; so that even in those beds where the *Tom Thumbs* and others have covered the ground I do not expect much display this year, unless August and September be unusually dry and warm.

Verbenas.—These have in most cases been universal failures—plants either dying off after planting, or been eaten by some invisible insect which riddled the leaves like a piece of network, or ate away the stems. Suffice it to say that Verbena-beds are in general bad, and, as a class, may be regarded as the worst in the flower garden. The few beds that have prospered having more the character of late autumn appearance than the first bloom of the season, and there are but few of this class. A few blackened tufts of half-starved plants placed thinly and irregularly over the beds are all that represent many plots that ought to be in gorgeous display at the present time.

Calceolarias.—Contrary to general expectation, these have not done so well as might have been expected; the high winds of the 28th of May, and since then, injured them much; but some have done not amiss, and will do better if the weather clears up. All are late, but all healthy.

Petunias.—Backward, but on the whole not so much a sufferer as the Verbena, and with drier weather a good display may yet be had.

Lobelias.—These are quite as promising as usual, but they want dry weather very much; a fortnight of sunshine will do wonders with them.

Tender Annuals.—These have invariably done badly. *Linum grandiflorum* scarcely showing itself at all; while *Rhodanthe Manglesii, Clintonia pulchella*, and some Dianthuses have been equally unsatisfactory. *Perilla Nankinensis* has, however, stood pretty well.

Dahlias.—Very late and some plants destroyed by insects, or quite denuded of their leaves by something or other.

Tropæolum elegans.—This charming bedder is, with the exception of the variegated plants, the best plant in the flower garden the present season. There are several varieties of it, but a dwarf scarlet one seems to answer best.

Miscellaneous Plants.—Ageratums, late; Heliotrope, many dead; *Alyssum variegatum*, good and one of the best plants for effect; *Cerastium tomentosum*, also good in a similar way; but *Cineraria maritima* presents a more grey aspect and less effective; Variegated Mint gets coarse; Salvias have made very little progress; Nierembergia still less so, though the plants are alive; *Cuphæa strigillosa* has done well, but *C. platycentra* badly; the old *Gazania uniflora* has done worse than usual, the newer ones I have not tried, but the list of failures so far outnumbers those of the opposite kind, that flower gardening this year will be marred of much of its interest by so many things wanting to complete the design not being forthcoming. The greatest loss, as before stated, being the Verbena.

To those who may wish to compare notes, as well as to the general public who may be asking in which way the past summer has differed from preceding ones, I give a table shewing the amount of rainfall of each of the three summer months for the last six years, with the average maximum temperature for the like period.

	1855. Rain in inches.	1856. Rain in inches.	1857. Rain in inches.	1858. Rain in inches.	1859. Rain in inches.	1860. Rain in inches.
June ...	1·21	1·36	1·67	0·67	1·75	5·09
July ...	3·23	2·48	1·07	2·69	2·01	2·67
August	71	2·03	2·93	1·20	2·13	...
	Average maximum temp.	Average maximum temp.	Average maximum temp.	Average maximum temp.	Average maximum temp.	Average maximum temp.
June ...	...	...	80·9	83·4	75·4	66·0
July ...	...	...	80·5	72·0	82·0	70·3
August	...	...	81·6	75·8	73·5	...

From the above it will be seen that the average maximum temperature of June and July, 1860, has been respectively 9½° and 11⅔° lower than the same months in 1859, while the rainfall of June, 1860, almost equalled that of the same month for the four preceding years. But this is not all: the almost total absence of sunshine gave no opportunity for the earth being warmed, or any portion of the moisture by which it was saturated being withdrawn by evaporation, otherwise the rainfall of July has not exceeded the average. Unfortunately, we have no instruments (that I am aware of), for measuring the amount of sunshine we have; otherwise, if that were accurately done, I feel certain the deficiency in the present season far exceeds the surplus rainfall by which we are said to have been visited. J. Robson.

A HYBRID PLUM OR NECTARINE.

An entirely new species of fruit has sprung up among us that seems to unite the characteristics of both the wild Plum of our woods and the red Nectarine Peach, and all that is known of its origin is the following:—A gentleman near Franklin, in his garden planted some stones of the red Nectarine Peach, which, on germinating and throwing out their leaves, one among them was discovered of very singular formation, and like nothing else the gentleman had seen. He let it grow, and when transplanting his Nectarines left it standing in his garden, where it has fruited for the last three years, the fruit being of a fiery red colour, the size of the Nectarine, and nearly round in form, and of most delicious taste, the pulp being soft, juicy, and rich, and to my taste superior to any of the Plum family. Its proprietor referred it to myself for a name; and I at once saw, from the peculiarities of the tree and fruit, that it was a hybrid, which owed its origin to a wild Plum and a Nectarine Peach, but could not venture to publish my opinion until I saw that the Nectarine and Plum had been hybridised by Dr. Wylie, of Chester, S. C., he having exhibited the fruit at the South Carolina fair, and taken a premium as a reward of his success.

This is a new fruit of exquisite beauty and fine taste, ripening through September, and thus far has been free from the *Circulio punctures*—a thing that cannot be said of our Gages, except where hogs run about the trees. The tree inclines to run to top, with clean smooth branches, free from spurs. A leaf I send herewith, also the short one from the wild Plum, that you may see that its length occupies that middle space we would suppose it ought between the foliage of its parents.—S. McDowell, *Franklin, N.C. Cincinnatus.*—(*Prairie Farmer.*)

MARTENS AND BUGS—LEMON KIDNEY POTATO.

I should be glad to hear more about "Martens' nests and bugs," as I have the same complaint to make as your correspondent, at page 261. I have several nests, and invariably in spring, when the Martens have commenced taking possession, bugs begin to appear on the windows of the house, but I do not think they bite; and an upholsterer, to whom I mentioned the

circumstance, said it was a bug different to what is here called the "bed bug." In Kollar's work, the only one I have to refer to, I find only the one sort. Can any of your entomological readers say whether there are two distinct kinds?

While writing, I have a word for Mr. Pownall, as to *Lemon Kidneys* (see page 272). I have tried all the early sorts and find this the earliest. Here it certainly beats the *Ashleaf*, which came in a week later than the *Lemon Kidney* this spring. This latter was planted out April 3rd, and first dish gathered June 13th, about ten days later than in ordinary seasons. *Early Handsworth*, planted at the same time, came in with the *Ashleaf*. I do not think the *Lemon* so good as the *Ashleaf* to eat new; but, when ripe, it is a first-rate mealy Potato, and the crop treble that of the *Ashleaf*.—A. R., *Bromley*.

VARIETIES.

Vines of the French Vineyards.—The original starting-point of the Vine seems to have been in that mysterious, undiscovered Eden or Merù, hidden in the East, which was the cradle of so much belonging to humanity. The Indian Dionysos brought it into Greece, and Rome was nowise backward in adopting her elder rival's gift. From Rome—some say from Phœnicia—the Vine was transplanted into France by way of Marseilles, and took firm root in what proved to be a most congenial soil; so firm, indeed, that in a very short time French wines were exported to Rome, whereat the more educated of the Latin deipnosophists turned up their noses and expressed due abhorrence. For at this early time in his industrial history, the Gallic Vine-grower had not made his system or built up his theory as now; consequently the wine-vat suffered—and the consumer. We should say that the modern South African wines are about our nearest approach to those early vintages of the Roman Gauls; and what they are needs no exposition. Taste them. In A.D. 92, Domitian, in one of those mad freaks common to the crazy Cæsars, ordered that all the vineyards in Spain, Gaul, and Britain, should be dug up and destroyed. There was some old Roman idea of protection to ale and mead in this decree, which was based on the pretence that "corn tillage was neglected;" and it was not until nearly two hundred years after—namely in 282, that, by an order of Probus, the vineyards were suffered to be replanted. In 1567 there was another raid in France against them. The old Vines were dug up, and new ones were forbidden to be planted. In 1627 the same *ordonnance* was again passed. In 1725 certain provinces were forbidden to cultivate wine-producing Grapes at all; and, "in 1730, a royal order was issued that no new Vines should be planted without a formal permission, and, if that were obtained, a certain number of white Mulberry trees were to be planted in return, with a view to the silk manufacture, at least in relation to the Bordelais." It was not until the revolution of 1789 came to sweep away these and other cognate tyrannies, that the cultivation of the Vine was left free to follow the impartial laws of supply and demand. In the twelfth and thirteenth centuries, the Crusaders brought with them the rich Muscat Vines of Corinth, Cyprus, and other places. These Vines were first planted at the foot of the Pyrenees, and were the progenitors of the sweet and luscious Frontignan, Lunel, and Rivesaltes wines, which come almost into the category of *liqueurs*. We can imagine with what gusto the first glass of rich, soft, perfumed Frontignac was drunk by the joyous old abbots and monks who had grown wrinkled and grey in the service of the thin, half-sour, bodiless wines of Bordeaux and the rest. It must have been like a revelation to them. These successive importations increased the number of varieties to an almost incredible extent; but no one thought of distinguishing or arranging them until 1771, when the Abbé Rozier began the task. Various workers succeeded him, until, in 1843, M. Bouchereau's collection of actual plants reached the number of 1056; the catalogue of the Luxembourg collection in 1844 mounting up to 2000. Some of the varieties are very interesting, the range being wide and the intervals distant. There is the *Early Black Morillon*, one species of which is said to bear three crops, though in reality not bearing more than one, as a general rule; but in the Department of the Seine and Marne there is a Vine called *Trifera*, and known to Pliny, which does really bear three crops,—the first ripening between the 15th and 20th of August; the second between the end of September and the beginning of October; and the third crop, which is generally short in quantity, between the end of October and the beginning of November, if the frosts have not set in before. To produce these three crops, the Vine must be planted to face the south, and be trained in espaliers. It is a native of Chio, and was brought into France by way of Calabria and the island of Ischia. The *Magdalen Morillon* bears two crops in the year, and has been even known to flower a fourth time. The *Meünier*, or *Miller* Vine with white, dirty, downy leaves, is also a precocious bearer, ripening at the same time as the *Magdalen;* while, on the other hand, the *Bourguignon Noir*, or *Black Burgundy*, "the parent of the best French wines," bears well but once in two years, has only a small crop at the best, but stands the spring frosts well, and will live for a century without any decline in its strength, vigour, or productive powers. The *Bourguignon Noir* has white cottony leaves, and small, black, oval fruit; it is of mediocre value for the table, but, as we have seen, is invaluable in the wine-vat. The *Raisin Perlé*, or *Pearl Grape*, is another good variety, with fruit of a pale green colour, pearl-shaped, exceedingly rich in saccharine juice, and slightly muscadine in flavour. The *Morillon Blanc* is also a good "white" Grape, with a mild sugary pulp, ripening easily, making an excellent dinner wine, and keeping fresh long, both in fruit and in wine. Then we come to the *Muscat*, or *Muscadine* Grape, with its white, red, and violet-coloured fruit, giving the luscious wines of the eastern Pyrenees, and of the Department of the Hérault. These are also the most precious table Grapes, having all that is required of the ideal Grape flavour, odour, form, colour—all that the Greek imaged when he sculptured the youthful Dionysos, and crowned him and his favourite Ampelos with Grapes and Vine-leaves. The *Muscat of Alexandria* has never more than one pip, sometimes none at all—a peculiarity shared by the *Corinth* Grapes. The *Aignan*, a small Grape, but very full of sugar, is used to mix with the Muscat wines, in the proportion of one to ten. Another favourite of the vineyard, perhaps second only to the *Muscat*, is the firm and beautiful *Chasselas*, with its pale green globes melting into amber in the sun, and cool and juicy in the mouth as a Water Melon. And there is the *Corinthe*, small, straw colour, seedless, and with a stalk so tender and delicious, it may be eaten with the fruit; but when of the violet kind, subject to the premature loss of its little, round clusters, which drop off before their time. The *Aleppo* Grape is one of the Crusaders' importation, and is frequently parti-coloured, some on the same cluster being white and others black; indeed, very often the same Grape showing half a Moorish face and half a Saxon from behind its yellow-gold and crimson leaves. This *Aleppo* Grape has the generally benevolent quality of strengthening and improving all other wines with which it is mingled; being, in fact, a kind of good fairy in the wine-vault. The *Scyras*, or *Ciras*, brought from Persia by a hermit who built his cell on a hill near Tain, on the Rhone, makes the ordinary red Hermitage. From the *Folle Blanche*, of the Charente, comes the wine which yields the Cognac brandies; from the *Carbenet*, or *Carmenet à petite graine*, or *Petite-Vidure*, comes the Médoc wines; the *Pineau Noir* gives the best Burgundy, specially the finest Clos Vougeot; the *Pineau Blanc* is grown in Champagne; Roussillon comes from the *Metaro* Grape, the *Carignane*, and the *Black Grenache*,—the best kind making the famous Masdeu; and the *Blanquette* gives a strong white wine, which passes under a variety of names. —(*Athenæum. From Reding's "Vines and Vineyards in France."*)

TO CORRESPONDENTS.

Various (*Allan Cameron*).—*Disbudding* is rubbing off a bud where you do not wish a shoot to grow; *pinching* is taking off the point of a shoot either to make it produce laterals or fruitful buds; if a shoot is cut away it should be done close to the branch; *spurs* are either shoots that are short naturally, or rendered so by stopping or pinching, which are synonymous terms. As to Melon culture, it would take a page to answer your queries justly; and the other inquiries could only be answered after inspecting the trees. Moreover, we cannot answer so many questions to any one correspondent at a time. Buy our "Garden Manual," and there, for 1*s*. 6*d*., you will find a book of ready reference, when you are in doubt in the departments of gardening on which it treats.

Anemone vitifolia and Dryas Drummondi (*N. W. B.*).—Both are quite hardy in all parts of the kingdom. The *Anemone vitifolia* requires soil as good as that for producing Broccoli; and *Dryas Drummondi*, the purest and most hungry-looking, sandy peat high up on rockwork; but it will do in front of and in the shelter and shade of Rhododendrons on the flat ground, if the place is not too wet. This and the *Dryas octopetala* are mere botanical gems, recollect, and both are very touchy. Just tell us, after *Anemone vitifolia* blooms with you, if you think the *hybrida* of Lindley and Gordon is really a cross between it and *Anemone Japonica*.

M. Appert on Preserving Fruits (*S. W.* and *C. P. D.*).—It is a French work published some years since, and may be obtained through any of the foreign booksellers in London.

Trollope's Victoria Strawberry (*F. G.*).—This Strawberry was raised at Limpley Stoke, near Bath, by Mr. James Trollope, the same person who raised *Princess Alice Maude*.

Name of Insect (*E. B. Boughton*).—The excrescences on the twig of

Hawthorn are a very unusual kind of gall, or rather series of very minute contiguous galls, formed by a kind of Midge (*Cecidomyia sp.?*). They are new to entomologists, and very interesting; and we should be very glad if you could supply more specimens to J. O. Westwood, Esq., Taylor Institute, Oxford.

Names of Plants (*John Wilson*).—Your plant is the *Serissa fœtida*, called, also, *Lycium Japonicum*. *The Cottage Gardener's Dictionary* calls the *flore pleno* of Loudon *multiplex*. This double-flowered variety has a kind of hose-in-hose flower, and called double. (*A Novice*).—Your flowers are:—1. *Spiræa ulmaria*, Meadow Sweet. 2. *Vicia cracca*, Tufted Vetch. 3. *Centaurea nigra*, Black Knapweed. 4. *Sanguisorba officinalis*, the Great Burnet. The botanical name of the Forget-me-not is *Myosotis palustris*. (*W. X. W.*).—Your flower is *Eryngium amethystinum*. (*E. W.*).—No. 1, appears to be a fragment taken from *Phlebodium aureum*. 2. *Lycopodium Wildenowii*. 3. *Davallia Canariense*. 4. *Cyrtophlebium angustifolium*. (*C. M. Major*).—Your Lily is *Lilium Japonicum*. (*H. Buttoille*).—We believe the Fern is *Lastræa rigida*. (*Two-years Reader, Dewsbury*).—We think the leaf is from *Dracæna ferrea*. (*A. H., Colesbourne*).—Your flower is from the *Juanulloa parasitica*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

August 15th. Ormskirk and Southport. *Sec.*, Mr. James Spencer, Ormskirk. Entries close July 31st.

August 23rd. Settle (Yorkshire). *Sec.*, Rev. J. Robinson, Settle. Entries close August 18th.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 3rd. Heckmondwike. *Sec.*, Mr. Frederick Brearley. Entries close August 24.

September 5th. Mirfield. *Sec.*, Mr. H. Rushforth, Escholt Place, Mirfield. Entries close August 27th.

September 5th. Keighley Agricultural Show. *Sec.*, R. Fawcett. Entries close August 29th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

PORTSEA ISLAND POULTRY PRIZE LIST.

Certain shows are like certain people—they are so well known it is unnecessary to do more than mention their names. Their characters are so well understood that every one knows what their behaviour would be under any circumstances. Doubtless others would deserve the same confidence, but they want the start. Lords Lyndhurst, Eldon, Brougham, and others, were once entrusted with their first briefs. Brodies, Chambers, and Fergussons, must have their first patients. Reynolds, Lawrence, Etty, Constable, Gainsborough, and Landseer, all painted a first picture. The start of all things is a trial, a doubt, and a misgiving. No brief was ever studied like the first. Chances, probabilities, even possibilities, all weighed, considered, and guarded against. How the first patient is watched and attended to! how every symptom is scanned, and preparation made for even the most unlikely event! How anxiously the young artist watches the countenance of the man whose verdict will make or unmake him! A first success is not, however, all, and after that there are misgivings among those who are disposed to patronise in consequence of it. Explanations and assurances are wanted, and these are seldom present to those who are most concerned in them. More frequently they are thought of by some friend to whom failure is recounted, and who then brings forth the reasons and arguments that should have been urged to prevent it.

But the wisdom of our present day has somewhat diminished the number of failures. We hardly know how to explain what we think, but we know what we mean. Diffused wisdom is the parent of mediocrity. In every department we have fewer planets, but more stars. It is a grand thing in the history of human nature, that those who have talent have at last learned that talent is not a marketable commodity unless it supplies that of which the community stands in need. When misery and starvation became associated with painters, it was because fixing their eyes on a few of the princes of the art, viewing their *chefs d'œuvres* as alone worth imitation, they forgot those domestic Snipes and Woodcocks—the baker, the butcher, the milkman, and the tax-gatherer. They spurned the tradesman who wanted his wife painted, and to whom she was as dear as the *Chapeau de paillé* was to Rubens; and after striving against poverty for twelve months, the grand conception, the picture that was to go down to posterity, is seized for a butcher's bill, and finished by a well-to-do rubicund fellow, who had just time to "knock it off" between the "Marquis of Granby," in Store Street, and the "Robin Hood," in the Market. "Look here," he says, "I have painted nothing but signs all my life, I live in my own house, and don't owe a farthing, and I finished the 'Damon and Pythias' that has brought a family to poverty."

But all this sack to a pennyworth of bread. What is it going to end in? May it please our readers, a Show is projected at Portsea, and the terms propounded appear to us so fair and laudable, we have endeavoured to usher it into the world with all the *éclát* our utmost endeavours could give to it.

The prize list is on a scale of great liberality. Spanish, Dorking, and Cochin, have three prizes each, of £3, £2, and £1. All other breeds and divisions of breeds have £2 and £1. The same for Geese, Ducks, and Turkeys. There is a silver cup, value seven guineas, for the exhibitor who obtains the greatest number of points in poultry; and another, worth three guineas, for the most successful Pigeon exhibitor. Then there is the popular class for Single Game Cocks, a sweepstake of 10*s.* 6*d.* each. Numerous Pigeon prizes. The rules are excellent; but with the exception of No. 23, present nothing new. It is as follows:—"The Council will hold themselves responsible for the payment of the prizes, should the necessary entries be obtained—viz., 300 pens of poultry, and 200 pens of Pigeons. Should sufficient money not be obtained by local subscriptions and entrance fees to meet the prize list, the Council will place themselves in communication with the parties who have entered pens, and either return the entrance money or reduce the prize list, according to the wish of the exhibitors."

This is such a common-sense and such an open way of setting about a Show, that we think it deserves every support, and we hope it will meet with it. It will still be time to make entries when this paper is in the hands of our readers. Just as George Robins is supposed to have said, "Chatsworth and Blenheim are not for sale, but I offer you a six-roomed house with the usual conveniences, and a copper newly set in the back kitchen," so we invite all to the Portsea Show. It has not the old fame and stability of the Birmingham (may its shadow never be less), or the Crystal Palace (that garden of delights), or the Liverpool (the incomparable); but it promises a nice Show, and a view of all the ships that shall be within sight at the time.

POULTRY AT NEWMILLERDAM HORTICULTURAL SOCIETY.

(*From a Correspondent.*)

This annual Meeting, near Wakefield, took place on Tuesday, July 31st, and was held in a field in the occupation of Mr. Ibbetson, and which, from its large size, afforded every facility for the display of various flowers, poultry, and animals brought forward for competition.

It was unfortunate, perhaps, for the promoters that the Show should have fallen, as it did this year, in the same week that the Yorkshire Agricultural and the Pontefract and West Riding Horticultural Societies held their well-known exhibitions at Pontefract, and where the larger number and greater value of prizes formed a powerful attraction so far as Newmillerdam was concerned, and materially detracted both from the number of exhibitors as well as visitors. The anxiety felt also by many of the surrounding farmers to secure the hay-harvest deterred many, no doubt, from patronising the Show by their presence, as well as prevented them from participating therein as exhibitors. Nevertheless, the weather having proved favourable, a much better display took place than, considering these influences, might have been expected. By ten o'clock in the forenoon exhibitors had their various articles on the ground, and shortly afterwards they were placed in the places allotted to them, and the Judges proceeded to make their inspection and give their awards.

The poultry classes were above the average, and comprised a number of very fine birds. Mr. H. Hemsworth's *Dorking* chickens were remarkably good, as were the *Game* chickens. Mr. William Cannan carried off five first-prizes with splendid birds — seldom, we think, equalled. The *Golden-spangled* chickens formed a very good class. The "variety class" contained Silver Polands and Malays. *Bantams* were a splendid lot. A Silver Cup, offered "for the best pen of Bantams," was obtained by Mr. John Crosland, jun.; also the first-prize *Game Bantam Cock*. The *Geese* and *Ducks* were very fine. The following is the list of awards:—

Game (Black Reds).—First, J. Crosland, jun., Wakefield. (Second withheld.)

Game (any variety).—First, F. Hardy. (Second withheld.) *Chickens.*—

First, J. Crosland, jun. Second, F. Hardy. Highly Commended, J. Crosland; G. Hill; G. Wentworth. Commended, G. Flower.

Dorkings.—First, W. Cannan, Bradford. Second, H. Hemsworth, Wakefield. Highly Commended, H. Hemsworth. Commended, G. Wentworth; J. Hirst; J. Forge. *Chickens.*—First and Second, H. Hemsworth. Highly Commended, R. Athey; J. Forge.

Spanish.—First, W. Cannan. Second, J. Hirst. Commended, J. Hirst.

Hamburghs (Golden-spangled).—First, W. Cannan. (Second withheld.) *Chickens.*—First and Second, J. Crosland, jun. Highly Commended, J. Hirst. Commended, J. Hirst.

Hamburghs (Silver-spangled).—First, W. Cannan. (Second withheld.) *Chickens.*—Arrived too late to judge.

Any Distinct Breed.—First, W. Cannan. Second, J. Crosland, jun. Highly Commended, F. Hardy.

Bantams (any variety).—First and Second, J. Crosland, jun. Highly Commended, J. Crosland, jun.; F. Hardy.

Game Bantam Cock.—First, J. Crosland, jun. Second, F. Hardy.

Best Bantams.—Silver Cup, J. Crosland, jun.

Game Cock.—Prize, J. Crosland, jun.

Geese.—First and Second, T. Wadsworth. Commended, T. C. Johnson.

Ducks.—First, R. Athay. Second, T. Wadsworth. Highly Commended, Master J. Hall; R. Athay; T. C. Johnson; J. Forge; G. Wentworth.

Judges.—Mr. S. Bird, of Sheply, near Bradford; and Mr. G. Hellewell, Sheffield.

REARING POULTRY.

Since my last communication on this head (July 10th), notwithstanding the extreme wet and cold, I have been more successful with my ducklings and chickens than usual, not having lost one, simply from my own personal care and attention in feeding them. I find that one person should have the sole charge and care over them, to insure success, towards whom they will evince great attachment and docility.

I have nearly a hundred, great and small, in number, in perfect health and full growth. Early-bred birds only will lay in the following winter, when most desired, and eggs sell best; others not being of mature age by that time, and what is bred after this time are not expected to be so lucrative as those reared in early spring. Such early birds are now ready for the spit to be eaten with our rarer varieties of green peas, and are better flavoured than those which have been shut up and made over-fat in filthy coops or dens. The male kinds (except stock birds) should all be killed or marketed as soon as full grown or approaching to it, as afterwards the corn, and time, and trouble, to keep them a longer period are wasted. The waste of the former being of the greatest consequence, not only to ourselves, but to the country's weal, whilst we have to send thousands of miles for it, not being able yet to grow sufficient corn at home to supply the wants of man.

To keep any animal, if it is intended to be slaughtered, longer than it is fat enough for eating, or after it will not pay for what it eats, I consider is waste of food, and a needful consideration.

My object for corresponding again on this subject, is to inform you that this week I am obliged to keep my ducks and chickens in closer quarters, as they had found their way, by stealth, to my corn and fruit, and had begun to demolish them sadly. I have a large farmyard, however, where I feed them all over it, as much amongst the loose straw and rubbish as possible, overnight, to keep them busy in finding it at early rise, and during the daytime. Where necessary, for want of a fenced and spacious yard, recourse must be had to keeping them in the fowl-house during harvest time (for only during that time is it necessary), due care should be regarded for cleanliness and ventilation, and the compartment should be sanded with a small portion of gravel mixed therein, to be swept and renewed, and cast every day into a tub, as a substitute for manure. A coop with small apertures for ingress and egress of the smaller broods should be constantly charged with a supply of corn, and a small drinking fountain placed in the centre. Fowls shut up require double the amount of food than when allowed to roam in a wide range, and are more subject to diseases, as are all our plants and crops within doors or abroad, when crowded together.—Abraham Hardy, *Seed-Grower and Merchant, Maldon, Essex.*

REARING YOUNG BULLFINCHES.

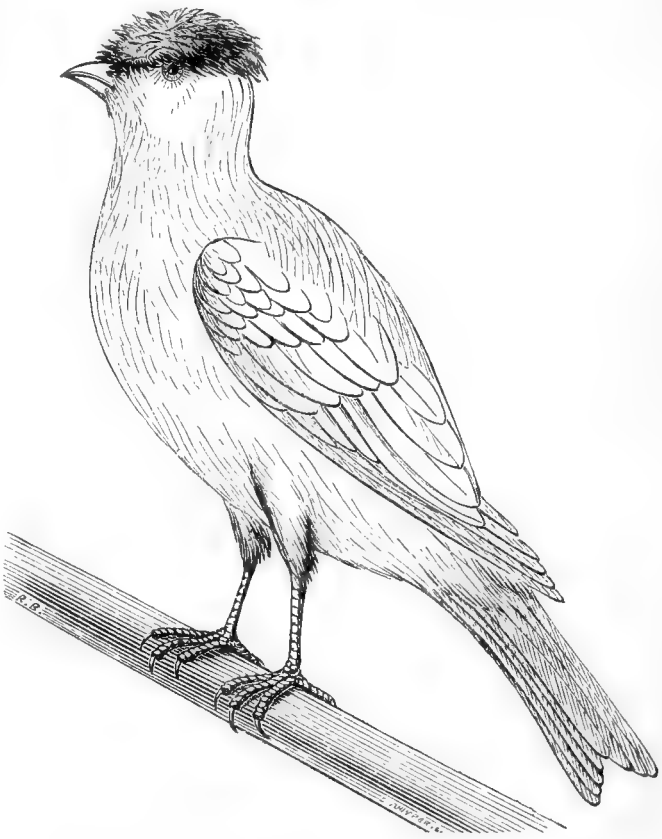
Can you inform me how to raise young Bullfinches? Also, how to teach them to sing, or will they learn from a Canary or a Lark, as I have both? I had a nest of five, I fed them on hempseed and bread pounded in a mortar. Though large when taken, they would take their food well off the point of a skewer, and went on well a few days, and then began to fail and die off. I found the gizzard full of the shells of the hempseed, which seemed to them indigestible. I then gave them boiled egg and bread, but one by one they all died. I found the shell of the hempseed still remaining inside them. I can still get another nest.—A Gardener.

[Young Bullfinches should be taken from the nest when partially fledged. Place the nest and young birds in a small, covered basket; feed them on a paste made of sopped bread (be sure there is no alum in it), hard-boiled egg chopped fine, and maw-seed. They may be fed with a flattened stick, or cut quill, every two or three hours, as much as they will open their mouths for. They should not be allowed to fast longer than eight or nine hours at the most at night. The food must never be given sour. Care should be taken not to smear their plumage with the food, and the dung must be removed from the nest. When they are old enough to leave the nest, put them in a clean cage, well sanded at the bottom, and furnished with stout perches, and they can then be fed through the bars. When they begin to peck supply the pan with dry bread, egg, and maw-seed, and the drawer with good canary-seed, and the glass with water. Continue feeding them by hand till they all feed alone well. Bullfinches are but poor hands at singing, but they may be taught to pipe or whistle, but it is a long task.—B. P. Brent.]

THE CANARY AND THE BRITISH FINCHES.

(*Continued from page* 280.)

6th Variety.—The Crested or Turned-crown Canary.



The Crested, Turned-crowned, or Copple-crown Canary derives its name from the feathers of the head being turned up, or reversed, so as to form a crest or crown. Instead of the head-feathers all lying smooth in a backward direction from the beak, as in most birds, in this variety they open from a point in the centre of the crown of the head, and spread out all round in front, over the beak, at the sides over the eyes, and behind in the usual manner. But here they are met by other reversed feathers rising from the occiput, or back of the head, like the turned crown in Pigeons; and when full and even all round, gives the bird a very pleasing and jaunty look. This remarkable property, so different from all wild birds, was early noticed by Canary fanciers, and regarded by them as a very valuable point. Thus we see M. Hervieux, 1718, in his list of Canaries, considers their being "of the Copple-crown breed" as a desirable thing, but "having Copple-crowns" still better; while those "with regular black and lemon Copple-crowns" he regards as the most valuable of all, and in his list of prices values such at 25 livres. He also gives some curious ways of ascertaining if these birds are of the Copple-

crown breed, as "having some white feathers in the tail," "having little white spurs" (claws), by their having more down on the belly of a white colour, and these he designates "Great Down Canary birds;" yet he admits "that there are some Canary birds which are of the Copple-crown breed, and yet have none of these marks." And again he says, "There are some Canary birds who have all the three marks I have spoken of; but one of them is sufficient to persuade you that they are of the Copple-crown breed."

As M. Hervieux is especially a Crested Canary fancier, and as he regards that variety as superior to all, this will be the appropriate place to notice his directions for breeding Canaries.

"The Certain Method for coupling of Canary Birds, that the young may be of beautiful colours.

"The more Canary birds have multiplied in this city (Paris), and are consequently grown the more common, the more nice people are grown as to their colours. Those who ten years ago were well pleased with a grey Canary bird of two pistoles price, will not be now satisfied with the common Copple-crowns. The Ash and Gold-coloured, the Buff and Mottled, are now of little value among the curious; they will have their Canary birds as pleasing to the eye by their plumage as they are to the ear for their sweet warbling. I have therefore here set down how Canary birds are to be coupled to expect the young ones more beautiful than the old. I begin with the common breeds, and will conclude with the most beautiful we have at this time (1718).

"They who couple a grey cock and a grey hen, which are both common, can expect none but a grey breed.

"The same is to be said of the Ash, Buff, Mottled, and Lemon coupled with hens of the same colour, which cannot produce any birds more beautiful than themselves.

"But when the different kinds are mixed it falls out better; for Nature often delights in producing finer and more beautiful birds than was expected.

"It is not always requisite to have Copple-crown Canary birds in order to make a beautiful breed; but it is enough that they be of the Copple-crown breed, for those that come from them are often more beautiful than if they came directly from Copple-crowns.

"For instance: A white-tailed grey cock with a rough-footed grey hen may produce, besides rough-footed Greys with white tails, which are to be expected, of course, some with Copple-crowns often more regular than if they had been bred from Copple-crowns. The same may be said of an Ash, Lemon, Buff, and Mottled cock, which, being of the Copple-crown breed, and that is known by their being rough-footed, or having some white feathers in their tails, being coupled with hens of their own kind breed beautiful birds and often copple-crowned.

"But those who would have still more beautiful Canary birds must match them thus:—

"A cock with an ash-coloured Copple-crown and a Lemon hen with a white tail will make a beautiful breed.

"All Copple-crown cocks with white-tailed hens, except grey with white tails, produce very fine birds.

"They who join Copple-crown cocks and hens will have all Copple-crown young, though sometimes they happen to be grey; and that is because either the dame or the sire of that pair of Copple-crown Canary birds was grey. But, in brief, they that would have some of that fine breed called the Jonquille with black copple-crown, which is at this time reckoned the most beautiful and highest-valued sort, must put together a Jonquille, or lemon-coloured Canary bird of the Copple-crown race, and a Jonquille or Lemon hen.

"If you would have more of the yellow and more of the copple-crown you must, on the contrary, couple a cock with a black copple-crown, and a yellow hen with a white tail, which produces the beautiful Jonquille; but, that this may succeed the better, the yellow hen with a white tail here spoken of must be from a Jonquille cock well marked, and from a yellow hen with white tail. In a word, this is all that can be done towards producing birds of beautiful colours. The young which come from this last race I have here spoken of, are more troublesome to rear than all other sorts, as being of a very tender constitution."

The above is all the information I could gather from M. Hervieux respecting the Crested Canary; but Dr. J. M. Bechstein, in his "Natural History of the Birds of Germany, 1807," in describing the varieties of the Canary bird, considers the Yellow or White Canaries with black, greenish, or Isabel-coloured crests as very handsome.

In some parts of Flanders, very handsome varieties of crested birds are cultivated; but I shall write more fully of them in my next chapter on Continental Pieds. The breed of Crested Canaries is but little cultivated in England—a circumstance I regret, as many of them are very handsome, and the crest is in itself a property so curious and so very different from the head of the common bird, that it deserves more notice.

The Crested birds in this country are mostly mealy or lemon-coloured with grey crests, and this seems the most general colour that has any claim to regularity; but the brighter and richer the yellow of the body, and the greater the contrast in the evenly-formed and coloured crest, the more they are admired. The only objection to the grey crest is their paleness, and that they so often moult lighter with age. Whole-coloured, Cinnamon, and Green Jonques are sometimes crested, but they are not very common. There is also some difference in the arrangement of the feathers. In some the crests are much fuller and more even than in others. M. de Feuille, a bird-dealer in St. Omer, informed me he once had a Cinnamon cock Canary with turned crown, the curl or turn of the feathers passing down each side of the neck like the chain in a Jacobin Pigeon.

Several writers on Canaries say it is not advisable to breed from two crested birds, because in that case the young ones are frequently bald-headed—that is, the centre of the crest is without feathers, which greatly spoils the appearance of the bird. In some parts of the south of England, a crested variety is bred and called, I believe, the Coppy Fancy, or Coppy Birds. These are a very large and handsome kind, and appear to be a cross from the Belgian Canaries, which they much resemble in their size, length, and upright carriage. Those exhibited at the Crystal Palace Show were whole-coloured, both Jonques and Mealy, the crests were very regular and even, but exceedingly flat, and spread over beak and eyes, nor did the crests appear raised at all behind, giving the bird a very flat-headed look. The longer feathers of the sides of the crest half covering the eyes. The birds, of which a dozen were exhibited, were very uniform, which indicated careful breeding.

Patchy irregular-pied birds are also to be met with, with crests; but that is no recommendation, as the fancier requires regularity.

I have heard of one or two talking Canaries, which were crested birds. I think some of the performing Canaries are crested, and it would be curious to examine if these crested birds are more intelligent or tractable than others.—B. P. Brent.

(*To be continued*)

MARTENS AND BUGS.

"Hulloa, James! are you practising a mulligatawny war dance or the *pose plastique?*" "I bin covered with bugs." "Bugs! Now stand still, man. Why, how on earth did these vermin get about you?" "From that Swaller. It was crawling about on the grass unable to fly, and I thought it was numbed with cold; so I put the poor thing in my bosom to warm it, when, in a few minutes, I felt such a queer tickling, which caused me to look in at my shirt front, and there were the nasty black things crawling all about me. I never undressed quicker in my life."

At Stanton Lacey, in Shropshire, some years ago, when the above memorable circumstance took place, James was mowing the lawn in the early morning. As I was dressing, from my bedroom window I saw him suddenly dart behind a spreading Laurel, and quickly toss off his shirt, continuations, &c., which caused me to expedite my toilet, and soon to appear on the scene, where James, with the liveliest action, was intent on ejecting the unwelcome guests from his body.

The "Swaller" was a Marten. I examined the "poor thing," which was in the last throes of death, and it was literally swarming with bugs—such a number upon so small an animal concealed under its feathers, was quite astonishing—real, black, stinking bugs.

Putting this and last week's inquiry about Martens and bugs together, there certainly does appear to be some connection between them; but how those vermin manage to infest the migrators remains to me inexplicable. Martens had built about the house ever since it was erected; but never a bug—rarely a flea—was to be found there. I wonder if those bugs migrated and came over with the bird?—Upwards and Onwards.

OUR LETTER BOX.

Guinea Fowls (*A Recent Subscriber*).—They do not scratch, but we do not think they would do much good in a kitchen garden. They will find out their own roosting-place. They will not thrive in confinement. For seven penny postage stamps your can have from our office, "The Poultry Book for the Many," which contains an epitome of all that we know about their management.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	AUGUST 21st—27th, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
21	Tu	Sun's declin. 11° 58′ N.	30.223—30.167	82—42	N.W.	—	57 af 4	9 af 7	26 8	5	2 51	234
22	W	Scilla autumnalis	30.302—30.173	81—44	N.W.	—	59 4	7 7	54 8	6	2 37	235
23	Th	Colchicum autumnale	30.176—30.036	82—46	W.	—	v.	5 7	31 9	☽	2 21	236
24	F	St. Bartholomew.	30.014—29.836	85—48	E.	—	2 5	2 7	18 10	8	2 5	237
25	S	Sedum telephium.	29.776—29.718	89—60	S.W.	.62	3 5	0 7	18 11	9	1 49	238
26	Sun	12 Sunday after Tr. Pr. Cons.	29.726—29.687	75—52	S.W.	—	5 5	vi	morn	10	1 32	239
27	M	Menthas, several. [B. 1819.	29.809—29.793	77—49	S.W.	.20	7 5	56 6	27 0	11	1 15	240

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 71.8° and 49.7° respectively. The greatest heat, 88°, occurred on the 21st, in 1835; and the lowest cold, 32°, on the 22nd, in 1850. During the period 144 days were fine, and on 87 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Cabbage, make a sowing, for early spring use, on a light, dry piece of ground that is only moderately rich. *Cauliflowers*, sow immediately, if not done as advised last week. Another sowing to be made in a week or ten days, according to the situation; no advantage being gained by having the plants very forward before winter. *Celery*, plant some of the last sowing for spring use. As it will not be necessary to earth up the plants, they may be planted in rows at a foot apart. *Endive*, make a last sowing for spring use. Continue to transplant from former sowings. *Lettuce*, if a sowing of the various sorts to stand the winter were made during the past week, another good sowing should be made the latter end of the present. The former will do for transplanting in the autumn, and the latter may remain in the seed-bed to be transplanted in the spring. *Onions*, sow seed of Spanish, Tripoli, or Strasburg, to stand the winter. The Welsh may also be sown for drawing in the spring; the other sorts are best transplanted in the spring for bulbing. *Spinach*, sow the winter sort, if not already done. *Potatoes*, take up the early sorts, and any others that are affected with the disease.

FLOWER GARDEN.

Look over rock plants, pruning back any that are overgrowing choice kinds, to give them sufficient time to break again. Cuttings of *Onosma taurica*, *Linaria alpina*, *Phlox aristata*, *P. amœna*, *P. nivalis*, *P. setacea*, *P. subulata*, *Linum flavum*, &c., to be put in for planting out in spring. Part Auriculas, if not previously done, that they may get well established before winter. Many of the Carnations and Picotees that were layered early will now be fit to take off; it is advisable to detach them from the parent plant as soon as rooted. Part the large roots of Polyanthuses with the hand. Prick out seedling Pansies, and plant out the first-struck cuttings for blooming next year. Cut off deformed flowers from Dahlias, and give frequent attention to staking, tying, &c., that the plants may not be broken by high winds.

FRUIT GARDEN.

Remove all superfluous shoots from wall trees, and expose the fruit to sun and air, not by cutting away the leaves, but by regulating the shoots for that purpose. To trap earwigs, place dry Bean-stalks, cut into lengths of about six inches, among the branches.

STOVE.

Shift on the Orchid plants that are making their growth; top dress others, adding fresh moss or sphagnum to those that require it; syringing those growing in pots or baskets or on blocks pretty freely with tepid water on the afternoons of fine days, and shutting up early. The absence of bright sunlight will more especially render it desirable to expose all plants to the little sunshine we have, that the shoots may be ripened before the approach of winter. A free circulation of air to be admitted to the plants, as their preservation in a healthy state through the winter will depend in a great measure upon the thorough maturation of the young wood.

GREENHOUSE AND CONSERVATORY.

Plants that are required to bloom in autumn and winter to be repotted, and their growth advanced. Sow Fuchsia seed when ripe immediately after it is gathered; to be washed out from the pulp, then dried, when it may be rubbed gently through the hands; at the same time mixing it with a small portion of dry sand to separate the seed sufficiently for sowing. The compost to be equal portions of peat, vegetable mould, turfy loam, with a sprinkling of sand. The pots to be well drained. Each seed to be pressed gently into the soil with the hand, and slightly covered with fine compost; to be watered lightly through a fine rose, and to be placed in a gentle bottom heat. Look out sharply for mildew on Heaths, Boronias, and where the slightest specks are visible dust them with sulphur. Pot Tropæolums of all kinds, giving them a free open soil, with plenty of sand and drainage. Thin out the Mignonette sown some weeks back, and sow another lot for blooming at Christmas. Roses, Lilacs, and other such plants for forcing to be examined, and such as require it to be repotted, plunging the pots afterwards. Pinks, Pelargoniums, and similar plants for winter forcing to be well established with plenty of roots in their pots.

PITS AND FRAMES.

Some of the first-struck cuttings will now be fit for potting off; place them in a pit or frame, keep them close for a week until the roots have made a start in the fresh soil, when they may be set out to harden previously to being housed for the winter. Put in cuttings of Maurandyas, Lophospermums, Cobœas, Ivy-leaved Geraniums, and other such climbers. Put in cuttings of the best kinds of bedding Geraniums, as they ought to be struck as soon as possible to be well established in pots before winter.

W. Keane.

KEW GARDENS IN 1860.

With the exception of the annual surface of flowers in the flower-beds not being quite so full as usual, I did not see much reason for the people of Kew to grumble at the weather more than the Hampton Court people. In every other respect, this season has been the making of Kew, as we say. Their young arboretum, their new beds for the million, and, indeed, their whole force from *Santolina viridis* to *Wellingtonia gigantea*, have made surer progress and more of it this season than during the like period since they were planted. From the semblance of the lowest order of shrubs, as that Santolina, to the great Mammoth tree itself, a general and most generous push of most healthy-looking growth has been made without forcing, and without bottom heat; and five or six weeks of dry harvest weather at the tail of the season, and before frost, would ripen this woody growth, and render it a far better foundation for the growth of after years, than one

from the sun and heat of last year combined with the wet and damped air of this. The flower-beds for the million will astound some people; but everything is done at Kew to attract the million, and to draw the Londoners to pure air and pleasant sights, and not only so, but familiar sights too. Beds of Lilacs, beds of Guelder Roses, beds of *Cydonia japonica*, beds of the dear old *Corchorus japonicus*, and beds of all the old Japonicas that were in use and vogue when London was in long clothes down in the distant provinces. Cloves, Picotees, Wallflowers, and Sweet Williams, Powdered Beaus, and Ox-eye Daisies,* will follow on the margins of these and similar beds, as sure as the old volunteer spirit has revived on the heels of the fashion for having village gardening to allure the free citizens to the richest enjoyments of country life in its highest aspects and aspirations. Beds of *Spiræa Nobleanum*, beds of *Spiræa Douglasii*, beds of *Spiræa callosa* alias *Fortunii*, beds of *Spiræa prunifolia flore pleno*, beds of *Ribes sanguinea*, and so on till you get round to Japonicas again, have been done and planted since my last report, and the plants are looking as healthy and as much up in bloom, and for bloom or past bloom, as if they had been there three years at least, and all from the low, damp, dark atmosphere of this season, which sent some few Verbenas and all Petunias out of beauty altogether. The blue Lobelias did very well, but not so strongly as we had them in the Chiswick Experimental, where we got thirty-six names for *gracilis* and its branches, and over twenty names for *erinoides* and its descendants. But here at Kew and there at Chiswick one could not escape the dread of losing our very best kinds, if people will persist in rearing so many yearly seedlings of them. *Lobelia speciosa* at Kew, from the first seed-house in London, is getting wild already. *Calceolaria amplexicaulis* is as good here as usual, and better than you see it anywhere else round London in the best season. All the variegated Geraniums are fine. *Punch* is their best scarlet; *Cerise unique* next best; then *Tom Thumb*, and then the Nosegays.

The Variegated Mint is a perfect picture; and if all their stock of it were run out in one line it would be over a mile long, perhaps over two miles. It is as near as possible nine inches wide, and from three to four inches high, and not the slightest mark of a knife or shears cut in it. The secret is this—not a cutting is ever made of it the year round, and no old root of it is ever planted out at Kew. How do you do it? *Lord Raglan* is their best Verbena—I mean stood best; but *Purple King* is nearly as good in some beds, and in others not much to boast of. *Cuphæa ignea* is better than in hot summers. *Cerastium tomentosum* does beautifully; but I must take to my notes, and give the degrees of goodness of all the kinds as we go.

The terrace garden in front of the great Palm-house is full from end to end, but not such a growth as is usual here. Each half is complete in itself, and a duplicate of the other half. All complete figures in this terrace style read from the centre bed; and the centre is then the key bed, which must never be high-coloured for fear of attracting the sight to the centre, and so making the place look apparently much less than it is. The two key beds have been put under a bushel since I was last there. A vase is placed in the centre of each of these beds, to complete a row of vases which occupy the centre line of the whole terrace, and thus two good ideas oppose each other, though ninety-nine persons out of hundred may never perceive it. Well, the centre, or key bed, has a vase of mixed colours, and round the pedestal is a ring of Perilla, then a body of *Flower of the Day*, a ring of *Baronne Hugel*, and then an edging of Cerastium, all looking very good. The pattern consists of three rows of beds, as it were, but not in reality, owing to the shapes of the beds. In the centre line, and right and left of the centre, or key bed, are two beds of *Lord Raglan* Verbena; and between these two bright scarlet beds, and on each side of the key bed, are two beds of Ageratum. In the centre line again, beyond *Lord Raglan*, right and left, are two beds of *Purple King* Verbena; then two beds of white Verbena, and at the ends two beds of *Golden Chain*. The end and corner beds on each side of the centre line are four match *Tom Thumb* beds; and inside these, four match-beds of *Calceolaria amplexicaulis*. The next and last side-beds of the figure opposite the key bed are two, with the centres of Perilla and *Brilliant* Geranium round them. Without a plan of the beds this is not easily comprehended, but that is the best arrangement of the colours and the quantity of each that I know of in a composition within many miles of London. The accessories now in vases, grass, gravel, and round-headed bushes, and upright-growing ones are very complete, with the lake and fountain in front. Also, with its own accessories of vases all round, and at each end of the terrace composition, to complete the whole space, are four more oblong beds, two at each end, and these are planted differently from the pattern beds; the colours in them run in broad stripes of purple, white, and scarlet across the beds, and in a line with the axis of the terrace—an artistic move to tell that these four beds do not belong to the general pattern.

The Dahlias are in smaller patterns, placed across each end of the Palm-house, the two ends being duplicates, of course. In these two patterns the Dahlias occupy two large oblong beds in the centre of each end, and at each end of the Dahlia-beds comes a round bed. The Dahlias are dwarf kinds; the centre line of them of dark kinds; a row of yellow kinds going all round, and the old *Zelinda* on the outside. Thus we have Dahlias at last planted on the system of keeping the colours together, or according to the rule of giving variety as opposed to the common way of mixing them up anyhow.

The two round beds at the ends of the Dahlias have a tall Humea in the centre; then a collection of Gladioluses, among which Verbenas are put to cover the surface, and there is a fine edging of Variegated Mint all round. Here, then, is a new move to admit the lovely Gladioli into our system of bedding. Round these Dahlia-squares is a border of Grass, in which standard Roses occupy the centres of small pincushion-beds, into which one may stick in anything, so it is pretty. That is just how to dispose of odds and ends and novelties in a large garden; and if one or more of the pincushions fail, up with them, and down again with a fresh experiment; and who knows but that, or those plants, may prove their title to a premier-bed on the terrace another year?

On the other front of the big house comes the American garden in sunk panels in parts and ports on the general level, with a broad walk running through the centre of it, and through the pleasure-ground in part, and through the arboretum beyond, and on to the grand new lake, which you will see under sail and feather in the *Illustrated London News* by anticipation, for it is yet as I shall tell you soon. But let us now keep to the flowers. Well, in the centre of the sunk Americans, and on each side of that long walk stand a match pair of *Araucaria imbricata* on raised knolls, which have a deep level diameter, but not quite so deep as that of the Rose Mount at the Crystal Palace. The Araucarias come in the centre, as the flagstaff does there; and round the top of these knolls is a circle of flower-beds cut into four divisions—two of these, the opposite or match pair, are in *Calceolaria amplexicaulis*, with an edging of Perilla. The other match pair in *Lord Raglan* Verbena, edged with their charming way of doing the Variegated Mint. These are splendid, being the four best-to-do things they have, after the Variegated Geraniums. The run of eight long oblong beds on each side the walk through the American garden are on this wise—the first pair next the Palm-house China Roses edged with Cerastium, the Roses

* The popular names for Auriculas and Polyanthuses about 1820.

in prime beauty; the second pair in *Hamlet* Verbena, and old Heliotrope, edged with *Calceolaria rugosa*, or one in that style; the third in *Brillante de Vaise* Verbena, edged with Variegated Mint; the fourth Ageratum, edged with *Tommy* Verbena, which is two shades darker than *Géant des Batailles* Verbena; the fifth with Perilla, edged with *Calceolaria amplexicaulis*, trained low down; the sixth *Brillante de Vaise* again, with Mint round it; seventh, *Hamlet* and *Cherry-pie* again, and edged with French Marigold; the last pair with *Amaranthus speciosissimus* for the centre, *Campanula Carpatica* (blue) round it, and edged with the Cerastium. But what on earth is that Amaranthus? Why, the "Prince of Wales' Feather," if you please, only owing to the absence of His Royal Highness it grows there from three to twelve inches high, and blooms from the surface of the ground; and, if you believe me, I booked it for a new species without guessing its origin when I passed on the way to Chiswick; but of course I did not tell of the mistake, when they told me it was all owing to the season, lest they should have the laugh against me.

The run of this walk through the pleasure-ground is lined with pillar Roses, two and two on either side; then an umbrella Acacia, and so on to the next gate. All the Roses are pincushioned with *Cerise unique* and *Calceolaria amplexicaulis*, and have done wonders up to the very top of the stakes already, and as luxuriant-looking as Brambles in an old sawpit. They certainly went the right way to have pillar Roses. I know people who have forgotten how many years since they planted for pillars which are not quite up to the mark yet; but then they made such small holes, and what they put in them no one remembers; then they put up iron rods at once, and every gardener knows how that ends. Every plant under a long stake gets soon overdosed with domestic guano from a familiar gentleman called Cock Robin. Gardeners never hit robins; but they hit on a plan to do him out of his merry crickets on the top of their stakes, by putting a pin in the top of each. Tom cannot sit or stand on the head of a pin, and is too proud to lean by the side of a pin or needle. But two pennyworths of pins go a short way on a long Dahlia-border. The best way is to order them by weight.

From the terrace garden to the head of the grand central walk begins the promenade style of beds, such as those at the Crystal Palace—a circle and an oblong alternately. But here this style is thrown into separate groups by a pair of Cypress or Junipers standing in the line of the beds at certain intervals. The first of these groups, beginning from the terrace, stand thus:—four circles, two on each side of *Delphinium formosum*, with an oblong bed between each pair of circles; these oblongs of *Countess of Ellesmere* Petunia struggling for life. Then a pair of Junipers, and a similar group, thus:—the four circles in *Cherry-pie* and *Hamlet* Verbena, with *amplexicaulis* Calceolaria in the centre; the two oblongs very fine with *Flower of the Day* and *Brilliant*, with a centre of *Purple King*. At the top of the grand centre walk next the lake, and round a circle, are four beds of *Punch* in very fair bloom, and beautifully edged with the Variegated Mint and *Mangles' Variegated* Geranium; and a tall vase is placed in the centre of the circle of grass in which this walk terminates. This is a marked improvement on former times.

The first group of promenade-beds below *Punch* consists of four circles in *Cuphæa ignea*, edged with Cerastium—all very fair, with a pair of oblong beds between the circles, which are of Ageratums, and edged with *Géant des Batailles* Verbena; then a match pair of *Cupressus thyoides*; then a pair of oblongs in *Calceolaria amplexicaulis*, edged with *Purple King* Verbena; then another pair of upright or Swedish Juniper; next to these a pair of circles of Perilla, edged with *Calceolaria aurea floribunda*, and centered with the dwarf Prince's Feather twelve inches high; two oblong beds next of *Cerise unique*, edged with Cerastium—very good. Next pair of circles: *Salvia patens*, trained down with Heliotrope, and edged with *Calceolaria aurea floribunda*; then a pair of *Juniperus thurifera*; and after them a pair of oblong beds of dwarf standard Roses, edged with dwarf Rose bushes, all the Rose-beds with Mignonette; another pair of *Juniperus Chinensis*; then a pair of circles in Ageratum, edged with *Tommy* Verbena; two oblongs of *Lord Raglan* Verbena, edged with Variegated Alyssum—very fine; two circles *Cherry-pie*, edged with *Tropæolum elegans*; another pair of *Juniperus Chinensis*, and an oblong of *Calceolaria amplexicaulis*, edged with *Purple King* Verbena—also very good; a pair of *Cupressus thyoides*; two circles of *Brilliant* variegated Geranium, edged with *Hippodrome* Verbena—a light one with a deep eye; an oblong in *Mangles' Variegated* Geranium—fine, and edged with *Tommy* and *Géant des Batailles*; two shades of dark Verbenas; two circles of Heliotrope and *Hamlet* Verbena, edged with *aurea floribunda* Calceolaria; then a pair of *Cupressus thyoides*, an oblong of Roses as before, and a pair of circles having Humeas in the centre; Prince's Feather round them, and edged with the Ribbon Grass, here named *Phalaris arundinaria variegata*, and that completes the one-half of this grand promenade.

The other half is not just a duplicate of the above; but we may assume it to be such, in order to get on the speedier; but here in the centre two walks cross the main line, so as to leave room for a large Oak on one side, and a half moon of grass on the opposite run. Here are eight more oblong beds with their ends to the great walk, two on each side of the great Oak, and two on each side of the half moon of grass. These are very fine after this fashion:—the two next the main walk have four feet of *Flower of the Day* in the centre, fifteen inches of *Brilliant* variegated Geranium next, and *Purple King* Verbena fifteen inches—all most beautiful. The next two of *Zelinda* Dahlia, edged with yellow Calceolaria; and the other four are duplicates of these.

The most telling bed in the lower half is an oblong of Perilla edged with *Fothergillii* and *Mrs. Vernon* Nosegays trained down—a fine mixture. *Jackson's Variegated* Nosegay is also very good this season; and *Baronne Hugel* round a long bed of *Mangles'* is also up to the mark, but the *Tom Thumb* Nasturtium is too common-looking for this style of bedding.

In an open court among the plant-houses is a bed thirty feet long on gravel with a grass verge planted in mixtures, but in regular rows of *Cineraria maritima*, Variegated Alyssum, *Calceolaria amplexicaulis*, *Purple King* Verbena and Perilla; here is a row of seedlings of *Cineraria maritima* all round, and just as variegated as the old plants from cuttings. This, therefore, is, as Miller says of it, a naturally woolly-leaved thing, and not a sport from a green species.

In another part on the grass, in front of one of the houses, is a toilet subject in flowers—a queen with a locket of something most precious suspended from a rich chain round her neck, and with a handsome bow in the centre of the chain between the neck and the locket in front. The queen is a *Magnolia conspicua* on a circle of grass sixteen feet in diameter. All round this is a three-feet-wide bed with *Punch* in the inner circle, *Purple King* in the centre, and *Golden Chain* all round. This brilliant neck-chain falls down in front one yard or so in *Tom Thumb*, also edged with *Golden Chain*, then the bow or knot across in two knot-like beds of *Flower of the Day*, with *Purple King* and scarlet Verbenas running round them like the figure 8; then four feet more of *Tom Thumb* chain, to which a golden locket is suspended in a circle of seven feet across of yellow Calceolarias edged with *Purple King* Verbena—a pleasant idea.

There is no end to the beds in pairs, or in groups along the minor walks; but take this as a fair type of them. A circle with Humea in the centre, a row of Perilla round it, then yellow Calceolarias, *Purple King* Verbena, and

an outer ring of *Lady Plymouth*. Another circle with Humea, Balsams, and *Brilliant* Geranium, and a foot wide of Cerastium not trimmed, and two oblong beds thus:—three rows of Prince's Feather down along the centre, *Calceolaria amplexicaulis* all round them, then a row of *Hamlet* Verbena round that, with Verbena *Tommy* round the outside—a very good mixture. Round the meeting of four walks, a circle of Fuchsias seventy-five feet through, another circle of dwarf and trained-down Roses inside the Fuchsias, and standard Roses in that row at equal distances; the dwarf Roses being one half *Géant des Batailles*, and large common China alternately, and when in bloom most gorgeous in contrast.

Inside those rings and in opposite quarters, are two match standards six feet in the stem, and large heads and very large palmate leaves. But what is it? Well, it is *Ricinus communis*, the genteel name for the castor oil plant; but what would the students in Edinburgh say to full standards of this plant? or how many gardeners have seen such? In the front of the old museum are seven large beds of different shapes, and composed in a single group with the ends of some and the sides of others to the walk, are exceedingly well-edged and economically too, by the Cerastium and Variegated Mint, nine inches wide and three inches high, and as if out of the same mould that morning. Verily, a good bold edging in contrast is the grand secret of setting off beds to the best advantage. The first bed is full of *Phlox Drummondi*, over white Petunias; the second, *Lord Raglan* Verbena; the third, of mixed kinds of variegated Geraniums; the fourth, of mixed Verbenas; the fifth, of *Calceolaria amplexicaulis*; sixth, *Brillante de Vaise* Verbena; and seventh, mixed Verbenas. Near this is a large bed of *Linum grandiflorum*, as good as ever was seen in this world, and edged with a mixture of white and purple Virginian Stock. In a hot season this Linum is soon over. In the same part is a bed of *Erisymum Peroffskianum* not trained or touched, and is as good as can be.

Over the arboretum are huge specimens of Scarlet Geraniums, planted out on the grass; also, large Fuchsias and Humeas, and there is an out-door aquarium all above ground, built of brick and cement, in three divisions. It is twenty feet wide and forty-five feet long. The two end divisions are in square tanks, having brick divisions across and along the centre, with a side-shelf all round, having only six inches of water over it, like the brick divisions, the tanks being thirty inches deep, or the full depth of the aquarium. All the Nymphæas are out here, and the red one was in bloom with three feet of stalk to the leaves. *Menyanthus trifoliatus*, one of our best water-plants, the flowering Rush, and ever so many more of such like; and the West Indian Water Soldiers were swimming about all over the surface, and there was a long bed of Cannas, of which *discolor* and *glauca* were the more conspicuous. But of exotic fancies more another day.

There is little cause to grudge or grumble at the want of flowers, seeing the immense good the wet, cold season has done, both here and at Hampton Court, to all the hardy and half-hardy woody plants, after the singe they had last October, and the scorching of the three previous summers. All that must be lost this season, in the way of flowers, is the opportunity of proving all new things out of doors. Nine-tenths of the old Geraniums must be kept over the winter, as nothing like a crop of cuttings can be secured this autumn. How stand the pits, frames, pipes, and flues? D. Beaton.

THE MASSING SYSTEM AND ITS ORIGIN.

Whenever an individual supposes that he has discovered a something new, and takes credit to himself for so doing, there are always some ready to assert that the same was known long ago; and others, following in the same track, carry their ideas backward, and, by some mysterious chain of circumstantial evidence, affirm that the thing was known to the Greeks and Egyptians—or, if that description of cavilling be not available, some natural cause is put forth as an exact counterpart of the thing claimed as an invention. Nature certainly contains our best models, and more especially in the department here treated of—flower gardening; for where is the parterre that contains such beauty and massive proportions as our wild wastes do, and the colouring sun equally inapproachable in the wild condition. Whoever has looked at an expanse of Furze or Broom when in bloom, and has not confessed it far exceeded the most gaudy bed of Calceolarias he ever beheld? Again: Let us look at the Heath when in full bloom—say August, and where is the flower-bed that contains so numerous an assemblage of florets all expanded at one time? And if we look upon a piece of indifferent light land that has been in tillage, and see the gorgeous display of Corn Poppies, where is the crimson Geranium or Verbena that can approach them for colour? And the past season was very prolific in the large Ox-eye Daisy, which whitened our meadows the same as the small Daisy does the pastures. Buttercups are also always in masses, and dry chalky districts abound in wild Thyme; and at a certain period I have seen a piece of marsh ground covered over with a blue Scabious. And many other examples might be pointed out where Nature performs her flower-gardening in masses; while, on the other hand, the *mixed* system is also exemplified in like manner. Our coppices abound with mixed colours after the Primroses of early spring are over, which ought to be mentioned amongst the most important of our natural bedders. All these things point out that our artificial system, perfect as it may seem to be, is merely a copy of Nature. A flower-bed ten feet wide is but nothing to a mass of a thousand acres or more of Heath or Furze. So that, whatever merit the individual thought himself entitled to who introduced the massing system of planting flower-beds with plants having flowers all of one colour, he only took a lesson from Nature; and the mixed borders are equally copies from the same supreme authority.

I have made these introductory remarks by way of explaining how the originators of massing flowers all of one colour in our parterres obtained their first hints; but it would be difficult to ascertain who availed themselves first of such splendid examples. Most likely it was introduced by degrees, the same as most other useful things have reached us. The late talented Mr. Loudon, than whom no one had better ideas of gardening matters in general, advocated it in the early numbers of his "Gardeners' Magazine;" and the design of the geometrical garden at Dropmore, with the mode of planting; it appeared in one of the numbers of that periodical some time, I think, about 1829, but I have not the number by me now. The configuration of this set of beds has subsequently been often called the "Dropmore design," and, I believe, is still in existence. The varieties of plants, however, have been much increased since then, and it would be worth while for those having the number of the "*Gardeners' Magazine*" in question reporting the masses of the plants then used. It is possible the plan might have been adopted at other places before it was at Dropmore; and I know Scarlet Geraniums were planted in single beds before 1829; but I am not aware of any place where a regular set of beds were planted with distinct colours in such a way as to form an harmonious design before that time, and certainly its adoption has very much changed the features of out-door ornamental gardening; and some go the length to regret its adoption. Be that as it may, its almost-universal adoption gives but little chance of its being abandoned yet awhile, and the great inquiry is for "something new" to fill it with. And though for individual purposes, beds mixed, divided, or formed of series of rings, may at certain times be admissible, in a general way they will be found to look best all of one colour; and more than that, a flower garden composed of a very few really good and distinct colours will often tell better than one boasting of a good collection. But this having been so often expressed before, it is needless pursuing the question further; at another time I will explain other old-fashioned modes revived.—J. Robson.

CROSS BETWEEN THE CARNATION AND PINK.

The pretty Dianthus you mention was sent to you by me, and was one of many seedlings from purple and scarlet-lake Carnations by the pollen of a handsome, dark, Indian Pink. I again made the same cross about two years afterwards, and sent an

account to the *Gardeners' Chronicle*, where it was especially noticed by Dr. Lindley, to whom I sent the first of them, a full double. It was this plant, doubtless, that that gentleman produced at the Society's rooms the other day. It is a beautiful plant, requiring, however, renewal annually by cuttings, or it soon dwindles and is lost. A plant exactly resembling it was raised many years ago by Mr. Atkins, "Cyclamen Atkins." Mr. Henderson has both of them at Pine Apple Place. The colour, especially of the singles, was so bright that on approaching the eye close to the plant an effect was felt like that of being dazzled by a strong light. I fear the singles are lost [No: ours are single.—Eds.], but might be easily reproduced.

The Carnation seeds shyly from want of anthers alone, and produces seed freely when fertilised by its own or other Dianthus pollen. Pinks and Carnations are in flower together this strange season, and breeders should cross the two.—R. Trevor Clark.

Why do not you bed out the new Begonias? They grow out of doors like Cabbages. [We do bed them out, but ours grow more like Broccoli!—Eds.]

GROWING PINES WITH VINES, AND OTHER FRUIT TREES.

In the first place (in answer to "An Old Subscriber," East Cowes), we unhesitatingly state, that where there are various compartments of a hothouse, the greatest success will be realised where only one thing is made the main object in each compartment. The next greatest success will be when two things are made pretty well chief objects, and the one at times must give place to the benefit of the other—as when Grapes and Peaches are grown in one house, or where Grapes and Pines are grown in another. With a little thought and managing, in either case, good crops of both and well flavoured can be secured. In either of these cases the crops of a more temporary character need not be confined to one or two. For instance: in either case Strawberries and French Beans may be grown in abundance until the shade becomes too dense; and in the Pine department Cucumbers and Melons may be produced, the first in winter and spring, and the second in early summer. With these several compartments of our correspondent, our advice would be to sacrifice the Peaches on the back wall where he contemplates having Pines, and either to place Vines there, or, what would be better, reserve it for early Cucumbers and Melons grown in boxes. This advice is founded upon the facts, that under ordinary circumstances it would be impossible to rest the Peach trees sufficiently without exciting them into bloom; and then when ripening, the close, moist atmosphere that would just suit a swelling Pine Apple in May and June, would also, no doubt, swell a Peach admirably, but give you when at its best the flavour not so nice as a half-grown sweet Turnip.

The success of Peach culture under glass depends on a thorough ripening of the wood, a period of repose after the leaves are fallen, a comparatively low temperature to start the buds into bloom, plenty of air until the bloom is set, a closer atmosphere, and warmer when swelling, but abundance of air as the fruit approaches the ripening process. If this free air is presented with abundance of sunlight, forced Peaches are as fine as, or even finer than, those procured from the open wall. Without this they will neither have good colour nor flavour.

The matter would be different, where, as in the present case, there are different compartments, if the Peach trees for the Pine-house were planted in moveable pots or boxes. I will suppose that the first vinery with Peaches on the back wall was started in December or January. The plants in boxes and pots would stand on the floor of such a house. From using heated water—say from 60° to 75° in watering, those in pots would come into bloom sooner than those planted out in the border of the house. The abundance of air given when the Peaches were in bloom, the temperature ranging from 50° to 55° at night, and a rise of from 10° to 15° in sunshine, would cause the Vine-buds to break evenly and strongly.

As soon as these Peaches in pots were fairly set and beginning to swell, they could be moved into the house with Pines, and receive a little more air for a few days than the Pines and Vines had received. Here the Peaches would swell freely, and, duly attended to in watering, would ripen something like a month earlier than their neighbours in the house in which they were at first started. If mere Peaches were an object, they might be ripened there; but in most cases it would be desirable to return them to the house from whence they came, or even to a later one in order to have the fruit good as well as early. In either case, unless some provision is made on purpose, the plants should be removed in order to ripen and rest their wood.

Our correspondent, however, is only one of many who attempt so many things in one house, that, after giving the above advice, I feel bound to draw on previous practice, and tell him and others how best they can accomplish their purpose, provided they do not mind some extra trouble and expense in the construction of the house. I would have liked to have known the construction of these hothouses, their height, width, means of ventilation, &c.; but in the absence of that knowledge I shall suppose that the houses are from fifteen feet and upwards in width, are some ten feet or more in height at back, and some five or six feet in front, and have short sashes at the back for giving air—say, three or four feet in length; and with this supposition I will add a few words on the management of Vines and Peaches established in one house, of Vines and Pines established in one house, and then of Vines, Pines, and Peaches established in one house.

First, then, as to Vines and Peaches—the latter up the back wall, and even in tubs in the centre of the house. Here both may be planted and managed in the usual way. The gradual swelling of the Peach-buds when started with a temperature of 45°, and gradually increased to 55°, will also cause the Vine-buds to start when the Peaches are in bloom. The free air at that time will rather assist the Vines in breaking strongly and regularly than otherwise, and all will go on well; similar temperature suiting both, until the Peaches approach maturity, when the extra air they require will be apt to arrest the Grapes now swelling freely and colouring for ripening. Fine crops of both we have often seen and had; but if the Peaches are extra well flavoured, the berries of the Grapes, though rich and well-coloured, are apt to be smaller than they would have been if the extra air to the Peaches had not been given. When justice is at all intended for Peach trees in such circumstances the Vines should be pruned on the spur system; and the main stems should, at the least, be from four to six feet apart. The Peaches will soon suffer if subjected to more shade. If a brick or wooden pit should exist in such a house it will be exceedingly useful. If filled with fermenting matter, dung, mixture of dung and leaves, tan, &c., when the house is shut up, it will cause the buds to swell and burst better than any combination of heating by flues or hot water. Care must be taken, whatever the material, that it be sweet before the buds burst.

Such a bed acts for a long time as a reservoir of moist heat, and may be used in growing many things before the Vines shade much. In a very large wide house I once had under my charge I used to have a huge mound of dung in the centre, but had the outsides at least sweet before the Vines broke. With such assistance I obtained Grapes in May, though the heating power was calculated for September. The turning such a huge pile at an early hour in a cold morning would give 95 per cent. of our clever young gardeners a fit of shivery ague. They could not do it, and there's an end of it, and an end of early Grapes too in such circumstances. Contemporary gardening literature just now is full about educating young gardeners in all the "ologies." All well enough if it does not puff them up with conceitology, and force those who employ them to be content with their learning, and get all the "ologies" of digging, forking, planting, potting, done by sensible labourers, who, having heads and hands, are not ashamed to use them. In such a bed in such a house we have grown young Pines from April to September, until there was room for them in the Pine-bed after the fruit was cut. The house then became a store-house in winter after the Vines and Peaches were hardened and pruned. Frost was merely excluded until starting-time came. In such a bed in such a house, too, I have merely followed some of our best old gardeners in obtaining fine early Cucumbers by the assistance of a glass frame. A supply was thus obtained very comfortably before they came in frames and pits out of doors. In moderately early-houses no peculiar care is required; but in late-houses, where the Grapes are wanted to hang till Christmas or later, it is advisable that the floor of the house be rendered dry early in autumn. Too much dryness, however, would injure the Peaches. They ought, therefore, to receive a good soaking early in September or the end of August; and then shortly afterwards, by keeping the surface roughish with the rake, that surface will become dry and prevent the damp rising. In extreme cases we have covered with dry sand, or even sawdust, so as to keep the atmosphere as dry as

possible about the Grapes. To assist this the more, use a little fire heat during the day and plenty of air, and even leave air constantly at night, however small the openings.

2nd. Grapes and Pines in one house. The pit here is essential, of course. The pit may have bottom heat by fermenting material alone, and will want more stirring and renewing. If the plants are to be planted out, or even grown in pots, plunged in tan, or leaves, it is preferable to have a heating medium below the bed. A tank or hot-water pipes would be best, though, as several times stated in this work, a strong flue would do very well. Whatever be the mode of heating, it would be of importance to be able to heat the pit without greatly heating the house when deemed desirable. I have had the management of Pines and Vines in one house under two circumstances,—when the Vines were planted outside but fixtures in the house, and when they could be taken out. In the first place, the houses were heated by flues front and back, but worked separately; the pit heated by tan alone. In such pits the second earliest fruiting Pines and younger ones were kept over the winter. By means of surface stirring and fresh additions of tan by means of a wide funnel, the bottom heat was kept to range from 70° to 80°. The top heat, so long as the Vines were at rest, ranged from 50° to 55°, generally about the first. When the Vines were pruned, they were untied from the rafters and tied close to the glass at the front of the house above the front flue. This flue was never used in winter unless in very severe weather. The back flue was worked to keep up the comparatively low winter temperature for Pines. After standing in such a temperature and dryish for several months, they generally showed directly when moved into a temperature some 10° or 15° higher, and a moist atmosphere. If any should fruit in the cool house, they were moved directly. With such management fine crops of Grapes and Pines were obtained. If the front flue had been worked in winter, the Vines would have been apt to break irregularly, because not sufficiently rested. When Vines cannot be moved out, it would, therefore, be doubly important to have a heating medium below the bed, and means taken by slides or openings to let out that heat at will, so as to heat the atmosphere of the house without using the heating medium in front of the house.

All this trouble of regulating the atmospheric temperature of the house may be easily avoided, and the Pines get exactly what would suit them according to circumstances, by having the front of the house so constructed with moveable studs that the Vines could easily be taken outside, or, what is much better, by having a double front to the house, the inner to be used only in the autumn and winter months. This will necessitate at least a temporary inner sill. The two may be some twelve or eighteen inches from each other. The inner moveable lights may be partly of boards. When Vines are taken out of a hothouse at once they are apt to suffer from the sudden change, and also from the wood being imperfectly ripened. They will also be liable to suffer from frost in winter, unless receiving protection; and when introduced at once to a hothouse, they are apt to break irregularly from coming from a low temperature at once into a high one. All these evils will be avoided by the double front. In an early house, for instance, the border outside could be kept dry after July or August. The heat then would soon ripen the wood after the fruit was cut. When the leaves begin to turn yellow, the Vines could be taken down and pruned, and then trained close to the front glass, and the temporary front put up behind them so as to separate them from the house and yet keep them under cover. The front lights left open would keep them cool. In winter, these lights when shut would give enough protection in severe weather, as some heat would radiate from the inner lights. When it is desirable to start the Vines, it may be done as gradually and nicely as if they had a house for themselves. Air being given by the outer lights, and heat admitted by partially sliding or opening the inner lights. The Vines may also be damped and syringed, when the house, as a whole, may be kept pretty dry. When the Vines have pushed an inch or two, the inner front may be removed, and the Vines regulated and tied up, choosing a dull day for the operation, and allowing the house to fall a few degrees at night for a week or so.

After this the treatment of Vines and Pines will agree until the first are ripe, when more air will be necessary than would suit Pines just swelling, which would rather prefer a closer and moister atmosphere. With such contrivances, fine combined results may be obtained. When Vines are taken out altogether, it requires considerable practice and experience to manage them nicely. Two years last October, a clever hard-working man asked my opinion of Vines so taken out, by the wish of his employer, who wanted a good crop, and would have his way. The Vines were everything as respected growth, strong and luxuriant, but telling by their appearance that they wanted a roasting indoors, instead of a resting and growing outside. My prognostications were but too correct—they scarcely produced a bunch the following season. A house disroofed for a similar purpose only escaped a similar result by having the sashes put on, air given almost constantly, though the quantity was small at night and in dull weather, and a dry, warm atmosphere kept up by fire heat until the leaves changed into yellow.

3rd. To have Pines, Vines, and Peach trees established under one roof, similar precautions will be necessary to insure success. What has been said above of Vines and Pines will equally apply in the present case; but in addition we shall want a longitudinal division of wood and glass reaching from the back wall of the pit to the sashes, or rather to a longitudinal slight coping placed there to receive them, and means of giving abundance of air at back, either by short sliding sashes or other means. This back division may be removed and applied to other purposes when the Peaches are swelling; and all the three kinds of fruit will then appear to be growing not only under one roof but in similar circumstances. Some who thought more of show than flavour might continue this until a couple of weeks or so after the fruit was gathered. I would prefer as soon as the first fruit swelled to ripening, and especially if there were Pines in the pit just beginning to swell, to introduce the division and give abundance of air to the Peaches—not letting them, however, be too cool, or that suddenly. What extra heat was required, as well as what back air the Pines needed, could be given by sliding or moving the sashes behind the Pines. When the Peaches are all gathered keep that department hotter and drier by diminishing air until the Peach wood was getting firmer, and then give more air. Sweep or take off leaves as they begin to change; and by the end of autumn the Peach trees may be cleaned, pruned, and trained. Now until it is desirable to start them we would keep this department to from 40° to 45°—never higher with artificial heat. This will enable you to make a greenhouse of it during the winter. The glass division will be sufficient to give this heat in common weather, or even with a few degrees of frost. If at all severe, slide the sashes a little, to let more heated air pass from the Pine department. When you wish to start the Peaches into bloom this regulating may be done to the greatest nicety: and until the fruit are swelling freely we would keep up the division. In fact, but for the look of the thing we would prefer it to remain almost constant. I have supposed that the heating is confined to the bed, and to the ends and front of the house, or nearly so, and that what extra the Peaches require is borrowed at first by openings in this back division.

If "An Old Subscriber" would refer back to the end of the second volume, he would see a diagram of a *multum-in-parvo* house heated by a tank, which would enable him clearly to see my meaning. That diagram was kindly reproduced some eighteen months ago, in Vol. XXI., page 226, No. 537. If he looks at that diagram, and supposes that the back part is appropriated to Peach trees planted out, instead of greenhouse plants, he will observe that the arrangements proposed are otherwise almost identical.

I have tried to be plain, at the expense of prosiness, and can only plead the apology that the subject is an engrossing one to very many of our supporters and readers. Others may succeed where I have tried and next to failed. With different compartments, much may be done, as respects variety, with plants in pots, and very successfully; but with permanent plants, so different in their nature and character, I am not at all sanguine, except such conditions as those mentioned are attended to. If wrong, I shall be glad to be set right. R. Fish.

HEATING BY ARNOTT'S STOVE AND BY GAS.

Some years ago I sent you an account of my Arnott's stoves, and the last winter has induced so many inquiries of "how to keep the cold out," that I think a few more remarks may be useful.

I have a vinery and greenhouse, each 18 feet by 15 feet, which have been for fifteen or twenty years heated by Arnott's stoves. The stoves are 18 inches square, cost £4 each, and have a zinc pan 18 inches square and 3 deep on the top to hold water, which constantly evaporates, and prevents dryness of the atmosphere.

They do not consume above £1 worth of gas coke per annum each. I have a similar stove in my lobby, warming the staircase and passages.

As on the former occasion, I send you a few of the Grapes to prove that they may be well grown in a house so heated; and my careful gardener kept on the narrow shelves in the greenhouse about 1200 plants during the late severe winter, and only lost six. [The Grapes are very fine.]

Six years ago, wishing to build an additional greenhouse with a span-roof, I turned my attention to heating by hot water. The power it possesses is remarkable, and one boiler will heat so great an area, and there is so much advantage in having a single fire to attend to, that for any extent of heating it is certainly the best system.

I may here remark that I think I have adopted a much better plan than the usual one—of placing the return-pipe underneath the flow-pipe by continuing it round the house, of course inserting the air-pipe at the highest point. This equalises the temperature. In a small stove adjoining I find that by adopting the double junction, which I found in Mr. Jones' advertisement in your journal, and keeping two pipes on the same level, I gained much more heat than if the water had been returned in the usual way.

Many questions are asked respecting heating small greenhouses by gas. Two years ago I was struck with the simplicity of Porter's National Gas Apparatus, manufactured at Lincoln in my own neighbourhood, I put it up, and find it works well. My house and stables are perfectly lighted at a small cost. If he does not advertise in your journal I tell him he should do so; and as his apparatus has for three years got the prize from the Highland Society of Scotland, where gas is much more used and understood than it is in England, I think I must be safe in recommending it.

Having got gas, I next look how to apply it to horticulture. The stove made by Kukla, Pentonville Road, I think deserves your inspection. In the combustion of gas mixed with atmospheric heat it produces moisture, and thereby, I should think, counteracts the noxious air, which we know in ordinary gas-burning is so detrimental to plants. I made a hurried call there on my way to the Great Northern Railway. The cost is trifling, and he said he was placing them in greenhouses, so you may be able to trace the result, which I cannot do.—A. L. M.

THE SCIENCE OF GARDENING.

(*Continued from page* 301.)

THE FRUIT AND SEED.

When the blossom begins to fade, "the joy of the plant" is departing, but other beauties and parts more important to the animal world are advancing to succeed the decaying inflorescence. The fruit and the seed are then entering on the season of maturity; will soon offer to the palate some of our most delicious luxuries, nor will beauty of colour be altogether wanting. "The ripened tints of autumn are equally pleasing with the bloom of spring, and the colours of the Peach and Apricot, the Plum and Cherry, are in nothing inferior to the blossom which preceded them."

The petals, stamens, pistils, and frequently the calyx, having performed their destined functions, fall and leave the ovary, or embryo seed-vessel, remaining attached to the parent plant. The embryo increases in growth and becomes the fruit, which title is not restricted merely to such as are edible, but includes every matured ovary with its contents, and which matured ovary, in botanical language, is known as the *pericarp*. This takes various distinct forms, and as all are subjects of interest to the gardener, each may have advantageously a separate notice.

1. The capsule is dry, woody, or membranous, containing one or more cells—as in the Poppy, Clematis, Ash, and Pæony.

2. The siliqua, or pod, is long, dry, and has two valves separated by a linear receptacle, along the edges of which are ranged the seeds alternately. Instances are in the Stock, Wallflower, and Cabbage.

3. The legume has two dry, long valves united by a seam at their edges, having no dividing receptacle as in the pod, but with the seed attached to one edge—as in the Pea, Bean, Laburnum, and other leguminous plants.

4. The drupe, or stone, with fruit usually soft and fleshy, not separating into valves, but enclosing a woody nut to which it is attached—as in the Peach, Plum, Olive, and Cherry; but sometimes the fruit is more dry—as in the Almond and Cocoa Nut.

5. The pome, or apple, is usually fleshy like some drupes, but enclosing a capsule with several seeds, instead of a nut—as in the common Apple and Pear.

6. The berry is pulpy, and has its seed embedded in its substance as in the Asparagus, Currant, Gooseberry, Strawberry, Raspberry, Potato, Orange, Melon, Cucumber, and Medlar.

7. The strobile, or cone, is scaly, tough, and woody, formed of the catkin or calyx which has become indurated. It is the seed-vessel of the Pine tribe, the Plane tree, and Comptonia.

Though thus varying in form, they have all one common office—the protection and maturing of the seed they contain. To effect this they require a due supply of sap as well as of the peculiar juice of the parent plant; for they make no further advance if the entire wood be cut through below them, so that they are only attached to the parent by a strip of bark; neither will they advance, though fully supplied with sap, if the peculiar juices are cut off from them by removing the leaves that are above them on the branch. The loss of such leaves, as previously stated, may be supplied by inarching to the denuded branch one still retaining its foliage. We have also shown that the application of a ligature to a Peach or Apple, shows by the enlargement on one side of the ligature that the sap really circulates through them.

Yet each fruit has a peculiar elaboration of its own to perform; for though the fluids afforded by the branches and leaves be nearly similar, yet each fruit differs from another in fragrance and flavour: six different varieties of the Peach and of the Apple, budded upon the same branch, still retain their particular times of ripening, and their distinctive colours and flavours. Now the processes going on at different periods of a fruit's growth are very opposite in their character. During their green and growing state they are usually converting gummy matter into an acid; but during the ripening they as commonly are converting an acid into sugar.

To convert gum or mucilage into tartaric acid, as in the early growth of the Grape, oxygen in excess should be absorbed; for their relative components stand thus:—

	Gum.	Tartaric acid.
Carbon	42·23	24·05
Oxygen	50·84	69·32
Hydrogen	6·93	6·63
	100·00	100·00

They might, therefore, be expected to absorb more oxygen than the leaves; and this is actually the case, for though a Vine branch will continue to vegetate in a glass globe hermetically sealed, yet the Grapes upon it will not increase in size unless oxygen gas be from time to time admitted. The same phenomenon occurs during the ripening of the Grapes; oxygen has to be absorbed during the conversion of the tartaric acid into sugar, but a larger volume of carbonic acid has to be evolved, and this is coincident with the result of well-established experiments, uniformly testifying that carbonic acid is given out abundantly by ripening fruit. "Six equivalents of tartaric acid," says Liebig, "by absorbing six equivalents of oxygen from the air, form Grape sugar, separating at the time twelve equivalents of carbonic acid."

This, however, is not the only decomposition taking place whereby sugar is formed in ripe fruit; but there is sufficient reason to believe that its mucilage and starchy constituents are converted into saccharine matter by the combined agency of warmth and the acids. It is thus that Apples are rendered so much sweeter by baking, and M. De Candolle states that the pulp of Apple dissolved in water with a vegetable acid is converted into sugar; that gummy matter obtained from starch and mixed with tartaric acid, aided by warmth, effects a similar transmutation; and M. Kirchoff proved long since that starch, digested at a gentle heat with diluted sulphuric acid, becomes sweet.

Dr. Kane observes that, "If we examine the composition of a young Apple, we find it nearly tasteless, and to consist of a loose ligneous tissue, in which is embedded a quantity of ordinary starch; as its growth proceeds, the starch appears to diminish in relative amount, the fruit become sour, from the presence of tartaric acid; after some time the acidity beomes of a much less disagreeable kind, and the tartaric acid is found to be replaced by malic acid; whilst the tissue is found to be infiltrated with pectin or pectic acid; finally, in the next and concluding stage

of maturity, the malic acid disappears, its place being taken by more fully developed pectine and sugar. Other reactions appear to be due to the decomposition of the acid constituents of the fruit.

"Fremy has shown that the origin of the pectin of the fruit is to be found in a body having a great analogy to lignine or cellulose, and which he terms *pectose;* when this is boiled it changes into pectine, and this change naturally takes place in the fruit under the influence of a natural ferment, *pectase,* which is analogous to diastase. This by its further action converts the pectine into pectic acid, or into other derived acids which resemble it in properties, and only differ in constitution by the abstraction or addition of the element of water. The *pectic fermentation* being like the lactic, unaccompanied by the evolution or absorption of any gas. Fremy found the formula of pectine to be C_{64} H_{48} O_{64}, and that of metapectine C_{64} H_{46} O_{62}, in his new researches. The pectine of the ripe fruit, therefore, has no relation either to the starch or to the acid the unripe fruit contained.

"The sugar of the ripe fruit is derived, according to all appearance, from the starch which the green fruit contains; either by the pectase ferment, or by the contact of the organic acid, the saccharine fermentation is induced, and Grape sugar, which is the sugar of fruits, is generated. It is not known whether the tartaric acid is first secreted as such by the plant, or whether it arises from the decomposition of any previously existing body, but it is easy to see how the malic acid is formed from it. Thus, malic acid, C_8 H_4 O_8, may be produced by the direct abstraction of oxygen from the tartaric acid, C_8 H_4 O_{10}, or, at those periods when the reverse action takes place and carbonic acid is given off, six atoms of tartaric acid, C_{48} H_{24} O_{60}, may produce five atoms of malic acid, C_{40} H_{20} O_{40}, with eight atoms of carbonic acid C_8 O_{16}, and four of water, H_4 O_4."—(*Elements of Chemistry.*)

We know from the experiments of Berard that, when unripe fruits are plucked, they do not ripen if excluded from the access of oxygen gas; but that in the air they ripen, absorbing oxygen at the same time, and giving off carbonic acid.

During the ripening of the fruit, the woody or cellular fibre it contains gradually diminishes, and is converted into sugar. This is familiarly noticed in some species of hard or winter Pears. In sour fruit, the cellular fibre seldom exceeds 2½ per cent. of their whole weight; in ripe fruits, however, it is still less, and as the constitution of this substance is so analogous to that of Grape sugar, there is no difficulty in understanding that it may be readily converted into the latter, through the agency, probably, of the protein compounds which are present in the fruits.

The relative proportions of sugar, gum, cellular fibre, acid, &c., in the Peach at three stages of its growth were found to be as follows:—

	Unripe.	Riper.	Fully ripe.	
Sugar	trace	6·64	16·48	per cent.
Gum	4·10	4·47	5·12	,,
Cellular	3·61	2·53	1·86	,,
Malic acid	2·70	2·03	1·80	,,
Vegetable albumen	0·76	0·34	0·17	,,
Water	89·39	84·49	74·87	,,

So that though in this fruit some of the acid and woody fibre had disappeared *during the ripening,* yet the greatest portion of the sugar contained in the ripe fruit had evidently been derived directly from the ordinary food of the plant.—(*Johnston's Agric. Chemistry.*)—J.

(*To be continued.*)

CRYSTAL PALACE SHOW OF DAHLIAS AND OTHER CUT FLOWERS.

We have received the schedule of the "Grand Exhibition of Dahlias, Cut Flowers of other descriptions, and Fruit, to be held at the Crystal Palace, on Wednesday and Thursday, September 19th and 20th, 1860," and the same may be had by all intending exhibitors, and should be sent for at once, to Mr. W. Houghton, Secretary to the Flower Shows, Crystal Palace, Sydenham. If any of our readers should show then for the first or second time, we seriously recommend them to see that the few indispensable rules about the classes in which to show, and other arrangements, should be observed on their part to the letter. Nothing can be done well without a system, without rules or bye-laws, or without adhering to them strictly. Everything about the Show seems to us to have been well arranged, and there is no lack of liberality about the number and value of the prizes. As witness the following digest of them:—

DIGEST OF SCHEDULES OF PRIZES.

Dahlias are to be exhibited in classes of 50, 24, and 12; the latter to consist of fancy kinds, and nurserymen and amateurs may compete in any of the three classes. There are three other classes for amateurs only, consisting of 24 blooms, 12 blooms, and a fancy class also of 12 blooms. The amount of prizes for these six classes is £66—that is, £36 for the three classes in which all may compete, and £30 for the three classes reserved for amateurs. The prizes range from £7 to 10*s.*

Asters are in two classes, as German and French, and 24 blooms in each class. The prizes are £6 10*s.*, or £3 5*s.* for each, and both are open for all growers to compete.

Roses are in three classes, one of 36 kinds, in three trusses of each, and two of 24 kinds, each in single blooms. One of the latter is reserved for amateurs, the other two are open to all. The amount of prizes is £13 15*s.*, ranging from £3 to 10*s.*

Hollyhocks are to be in single blooms only, in two classes, one of 24 blooms, open to all; and one of 12 blooms, for amateurs; £3 15*s.* is the amount of prizes.

Verbenas are in one class of 24 kinds, and 5 trusses of each, open to all growers; 20*s.* for the first, 15*s.* to the second, and 10*s.* to the third best.

Gladioluses, in one collection, not limited to number, and open to all growers.

Phloxes, also in one collection of 18 kinds, open to all.

FRUIT.

The prizes for fruit are on the same liberal scale as on former occasions, and no distinction is made between fruiterers, market-gardeners, and amateurs.

Messrs. Arthur Henderson, and Co., Pine Apple Place, Edgeware Road, offer a prize of five guineas, and a prize of three guineas, for the best and next best dish of *Snow's Muscat Hamburgh* Grape. In all cases a dish of Grapes to consist of three bunches. The Judges have power to give extra prizes, and to withhold a prize, or lower the amount for the prize offered, according to their own estimate of the merits of the subject. Altogether the Exhibition seems to us to deserve the utmost success.

A LESSON FOR "JOE."

If our correspondent "Joe" really feels himself to be a novice, but resolves to improve himself by perseverance, then we have no doubt he will ultimately succeed; but if this novicism to everything but eating is a mere pretence, by which he would conceal from others as well as hide from himself a great amount of personal conceit and self-esteem, then we prophesy that his success will be slow, and his ultimate rising to eminence a great uncertainty. Let him test himself and act accordingly. No man yet ever valued or strove after knowledge until he felt his own ignorance and deficiences. If "Joe's" description of himself is really correct, then we say, Go on and prosper. If self-consequence lurks under the pretended ignorance, no wishes of ours will really make him prosper. Hoping that the first is the case, the first advice we have to give to "Joe" is to sacrifice almost every other pleasure—even that of eating much, if a full stomach will interfere with our recommendation—and that is, that he leaves no means untried, at home or at evening-school, to learn to write neatly, and, above all, to spell correctly. In the short letter there are about a score of inaccuracies. We do not go so high as some anent the education of gardeners; but surely in these days every young gardener ought to be able to read and write his mother tongue. Secondly, we would advise "Joe" to act as if he felt that his master can do without him much better than he can do without his master; and if he wants information, to ask for it in a respectful deferential way. We may be wrong, but unless the numbering referred to be a secret for keeping certain things to his own knowledge, and in which it might not be wise to trust second parties, we must say that gardeners as a class are much freer in communicating what they know than any other class of men that ever I happened to be acquainted with. Only ask your neighbour Quilldriver a few trifling questions, and ere long you will have a note enclosing ever so many 6*s.* 8*d.* for consultation fees; whilst the same worthy, if he gets hold of you, will pretty well turn you inside out, just as if he had a perfect

right to be made as wise as you are yourself, without ever dreaming of yielding you the slightest acknowledgment in return. Men who would look black as thunder if you intruded into their office on some trifling business at a busy period, will present themselves at the garden-gate at any and at all times, and think themselves rather badly used if the gardener should not meet them with the blandest looks, though their trifling recreation should cost him some hours of toil and sleep afterwards when they are enjoying themselves. Many gardeners are finding this free use of them by the public to be rather more than an unpleasantness. But men who submit to all this are not likely to refuse to give information to a man working under them, when that is sought in a modest and respectful manner. I may be wrong; but as a single feather will tell the direction of the wind, so I have rather feared that the reason why the information was not given might be owing to "Joe's" assumed importance, or want of scholar-like bearing; and no man cares, and that without fee or reward, to give information to another who already in his own estimation knows so much. Now to the questions.

1st. Different gardeners have different modes. For common purposes nothing is better than common figures. For cutting on wood Loudon and others advise different plans, which will be found in gardening books.

2nd. When you have mastered our little books, "Gardening for the Many," "Window Gardening," "The Greenhouse," &c., we will then advise you further.

3rd. All the Brugmansias have long tubular flowers. Had you mentioned the colour it would have been some guide.

4th. Wash the Fuchsia seeds from the berry, dry and save in a dry place, and sow in spring.

5th. The Cucumbers have got a disease. This has been a bad season for Cucumbers. Next year, use seed from a distance, and thoroughly fresh soil, without a particle that has been near the place before, and wash with lime, and repaint your pits and frames.

NOTES ON FERNS.

Polystichum anomalum. J. Sm. (Synonyme—*Polypodium anomalum*, Hook, et Arn). *Fronds* eighteen inches long, broadly ovate-lanceolate, bi-pinnate, coriaceous, dark green. *Pinnæ* lanceolate, acuminate, the pinnules serrated. *Veins* free, forking, the upper veinlet bearing the sorus upon its apex. The sori are almost universally produced upon the upper surface of the frond; in many specimens which I have examined I have observed no attempt to produce them on the under side. The *sori* are usually naked, but occasionally, if examined while young, a small, deciduous, filmy indusium will be observed. The *stipes* (which is about a foot long), and rachis covered with deciduous chaffy scales, which are of a bright brown colour.

All who have seen this Fern, unite in saying that it is the most singular and remarkable member of the family. We often hear of single instances in which the sori are produced upon the upper side of the frond, as in *Asplenium trichomanes*, and some of the curious varieties of *Scolopendrium*; but this is the only instance within our knowledge of a plant which does so universally, and as its usual mode of operation. Many persons now study this elegant tribe of plants in a botanical point of view, and to all such it will be a most interesting and curious object. It requires stove treatment, being a native of Ceylon. From that island it was sent a few years ago by Mr. Thwaites, the persevering Director of the Botanic Gardens of Peradinia, to the Royal Gardens, Kew. It is at present one of the rarest of Ferns, and has hardly found its way yet into the nurserymen's catalogues.

Pellæa flexuosa. Fee. (Synonyme—*Allosorus flexuosus*, Kaulf. *Pteris flexuosa*, Hook. *Platyloma flexuosa*, J. Sm.) *Fronds* three or four feet long, flexuose, and sub-scandent; bi- or even tri-pinnate, the ultimate divisions of the frond are thrown off at the angles of the zigzag rachis, and have usually three or five pinnules. These are ovate, somewhat cordate at the base, stalked, and articulated with the rachis. *Veins* free and forking. *Sori* continuous, protected by the reflexed margin of the frond. *Rachis* covered with fine yellowish down. *Rhizome* creeping, and producing the fronds in tufts from its apex.

A native of Peru and Mexico, where it is often seen scrambling over low bushes. It is scarcely to be called a climbing Fern; but it requires a slight trellis, to which the fronds may be fastened, for they are extremely brittle and easily broken. It should be grown in a cool greenhouse; if the thermometer does not fall below 40° in winter that will be found sufficient for it. Its peculiar habit, being unlike every other Fern, and the pretty colour of its fronds and stems, make it well worth growing. A good specimen of it is really a beautiful object. It may now be obtained at a low price; for it has been a long time introduced, and comes freely from spores.

Doryopteris sagittifolia. J. Sm. (Synonyme—*Pteris sagittifolia*, Radd. *Litobrochia sagittifolia*, Prest.) *Fronds* strap-shaped, sagittate at the base, and acuminate at the point (so as to be in form like a lengthened arrow), about a foot long, of a bright glossy green, paler beneath, coriaceous. Most of the fronds are fertile, having the *sori* running along the whole edge of the frond. The indusium is formed by the reflexed membranous margin of the frond. There is a moderately thick midrib, the veins are nearly all uniform in thickness and reticulated, so as to form a network of long meshes. *Stipes* (as well as the midrib) ebenous—*i.e.*, black and shining, as in the Maiden-hair Ferns. The fronds are produced in tufts from a creeping rhizome.

The glossy fronds of this beautiful Fern make it a general favourite. Unfortunately, it is very subject to the attacks of green fly and thrips; but these are easily kept under by a slight syringing with a solution of the Gishurst Compound, washed off again before it is allowed to dry; or by occasional fumigation with tobacco. These insects will not be found very troublesome unless the plant be grown in too strong a heat. It is a Brazilian Fern, and may be propagated by division. The name is derived from words meaning "The Spear-headed Fern."—Karl.

GREENHOUSE ORCHIDS.

(*Continued from page* 298.)

Summer Treatment.—During this period these plants should be encouraged by a liberal supply of moisture and heat, in order to make their growths. Those on blocks of wood should be well syringed on the evenings after a sunny day. In dull weather a slight sprinkling in the morning only should be given. If severely syringed in such weather, there is great danger of damping off the young shoots and leaves. On this point, therefore, the amateur must exercise his best judgment; for though, on the one hand, Orchids require plenty of moisture when in a growing state, yet if, as is often the case in our climate, there succeed several days in succession that are of a rainy damp character, the giving water then is not needed—at least not in abundance. Water at the roots of such as are grown in pots and baskets should be regulated by a similar rule—that is, water most freely in hot dry weather, but more gently in dark dull weather. The proper application of water is of the greatest consequence to these plants. In watering, when the growths are very young, pour the water on out of a very small spout round the edge of the pot, only avoiding to wet the plants in the centre. When the new pseudo-bulbs are swelling freely, then water may be given more plentifully.

Air-giving.—In summer air should be given to these hardy Orchids freely. In fact, day and night in warm weather the temperature of the open air will generally be amply sufficient for them during June, July and August. In cold nights in the early and later months, the heat of the day may be economised by shutting up the house early in the afternoon, and not giving air so soon in the morning. In fact, the same heat as will suit a common Geranium or Fuchsia in a growing state will be amply sufficient for the Orchids comprised in the list below.

Orchids in baskets should be often examined; and if found dry in the centre they should be dipped in tepid water till the soil is thoroughly saturated. Weeds and insects during this season abound most, and should be extirpated diligently. The entire area of the house should also be kept sweet and clean—no decaying vegetable matter should be left in any corner or out-of-the-way place in the house. The above points of culture during summer are such as apply to such species as grow on blocks, in baskets, and in pots, and belong to the grand division named *epiphytal*—growing on trees. The other division—*terrestrial*, require during summer a similar treatment as to air-giving and syringing; but in watering, when they are growing freely, an addition of an occasional watering with liquid manure will add largely to the size of the foliage and bulbs: therefore let that be given to them say once a-week.

Towards the end of the summer, less water from any source must be given, gradually reducing the quantity. The end to be aimed at is, to get them to rest by the time the leaves begin to fall from the trees out of doors. I have sometimes and with some sorts, placed them out of doors in dry weather, in order to

induce a state of inaction, placing them near a south wall on boards or slates. By this plan I have caused the *Dendrobium speciosum* to flower, but this must be done with caution and care before the heavy rains set in.

Winter Treatment.—This season commences about the middle of October, and continues till the end of March. During all this time the plants must be carefully watched. Should any appear to shrivel very much, they must have a small quantity of tepid water to just keep them, both roots and stems, in a fresh state. Terrestrial Orchids should have their decayed leaves removed, and be placed where no water can reach the soil in the pots. The earth though apparently dry will be moist enough to keep the bulbs alive and fresh. As soon as the spring arrives, then get ready all the necessary soils, and, when required, fresh blocks and baskets, and proceed to repot, reblock, and rebasket the whole collection as soon as the symptoms of fresh growth are perceptible. Give the interior a good cleansing, and also sponge the leaves and stems quite clean. This will end the winter treatment, and then commence the summer season.

As I intimated in the commencement of these papers, I shall now give a list of such Orchids as will grow in a greenhouse temperature. My space will not allow descriptions of the species, I can only give their names. If the amateur desires to see that, he must consult larger works on that point. I may here observe, that most of the Orchids that are found in Guatemala, New Holland, China, and other temperate climes, are proper denizens of our greenhouses.

EPIPHYTAL ORCHIDS FOR POTS IN THE GREENHOUSE.

Aspasia epidendroides, Guatemala
Batemania Colleyi do.
Bifrenaria aurantiaca do.
Brassia brachiata do.
macrostachya do.
Cattleya Skinneri do.
Cynoches chlorochilum do.
ventricosum do.
Cymbidium Finlaysonianum, China
Cypripedium insigne, Nepaul
Cyrtochilum maculatum Russellianum, Guatemala
Dendrobium chrysanthum, Nepaul
densiflorum,* Nepaul
elongatum, N. Hol.
linguæforme do.
Dendrobium moniliforme, China
secundum, *var.* do.
speciosum, N. Holland
tetragonum, More. Bay
Epidendrum aurantiacum, Guatemala
macrochilum roseum do.
Stamfordianum do.
Lælia acuminata do.
majalis, Oaxaca
Lycaste cruenta, Guatemala
Skinneri do.
Maxillaria Maclaii do.
Odontoglossum grande do.
Oncidium leucochilum do.
microchilum do.
sphacelatum do.
Renanthera coccinea, China

I have no doubt this Chinese Orchid will grow well, and flower better and more freely in a warm greenhouse than in a higher temperature.

TERRESTRIAL ORCHIDS FOR GREENHOUSES.

To be grown in pots in loam, sandy peat, and lumps of cowdung.

Acianthus caudatus, N. Holland
Bletia acutipetala, S. Carolina
hyacinthina, China
Calochilus campestris, N. Hol.
paludosus do.
Cymbidium sinensis, China
xiphiifolium do.
Calophogon pulchellus, N. Amer.
Caladenia alba, New Holland
alata do.
cœrulea do.
testacea do.
Corysanthes bicalcarata, do.
fimbriatus do.
Dipodium punctatum, N. Hol.
Diseris aurea do.
caudata do.
elongata do.
maculata do.
Disa grandiflora, C. of G. Hope
cornuta do.
graminifolia do.
Disperis cucullata do.
Capensis do.
secunda, C. of G. Hope
Eriochilus autumnalis, N. Hol.
Eulophia barbata, C. of G. Hope
streptopetala, S. Amer.
longicornis, Cape of G. Hope
ensata
Glossodia major and minor, New Holland.
Lyperanthus suaveolens do.
Neottia plantaginea, Nepaul
Pogonia ophioglossoides, North America
Prasophyllum elatum, N. Hol.
flavum do.
striatum do.
Pterostylis concinna do.
grandiflora do.
gibbosa do.
longifolia do.
ophioglossa do.
reflexa do.
Thelymitra angustifolia do.
Forsterii, N. Zealand
media, New Holland
venosa do.

* I have seen this species growing well in a greenhouse at Stratford.

GREENHOUSE ORCHIDS.—To be grown in baskets.

Barkeria spectabilis, Guatemala
Catesetum deltoideum do.
longifolium do.
Russellianum do.
Cynoches ventricosum do.
Epidendrum rhizophorum do.
Gongora maculata, Demerara
truncata, Guatemala
Marmodes lineata do.
Oncidium stramineum, Mexico
Suttonii, Guatemala
Peristeria pendula maculata, Demerara
Sarcanthus paniculatus, China
rostratus do.
Stanhopea aurea, Guatemala

GREENHOUSE ORCHIDS THAT GROW BEST ON BLOCKS.

Cirrhopetalum Chinensis, China
Cyrtochilum filipes, Guatemala
maculatum, *var.* Russellianum, Guatemala
Dendrobium cucumerinum, New Holland
teretifolium do.
Dinema paleaceum, Guatemala
Lælia peduncularis do.
Oncidium nebulosum do.
Pleurothallis marginata do.
Rodriguezia maculata do.
Sarcochilus falcatus, N. Holland

T. Appleby.

HORTICULTURAL SOCIETY.

FRUIT COMMITTEE.

A Meeting of the Fruit Committee was held on Thursday last, at 8, St. Martin's Place, W.C. Mr. Edmonds in the chair.

Prizes were offered for the best and second best collections of not less than six sorts of Peaches; and also for the best and second best collections of Apricots. The only exhibition in the former class was by Mr. Ferguson, of Stowe. The fruit was well grown, but in the opinion of the Committee it was not exhibited in accordance with the terms of the conditions, the leaves which accompanied the fruit not corresponding with the varieties they professed to represent, and a belief of the Committee that three of the varieties were identical.

Mr. Rivers sent specimens of the *July Green Gage* Plum, a valuable variety of the Green Gage, which ripened last year on the 21st July; but in consequence of the late season was not ripe this year till the second week in August. It received a First-class Certificate.

Rev. Bernard Smith, Marlow, sent large specimens of the true Peach Apricot, which, however, were not thoroughly ripe.

Mr. Cuthill, of Camberwell, exhibited dishes of his Strawberries *Black Prince, Prince of Wales, Richard the Second, Princess Royal*, and *Highland Mary*. These were sent to show the great productive power of these varieties, which Mr. Cuthill states have been bearing fruit successively for the last sixty days. The best in flavour was *Princess Royal*.

Messrs. Charlwood and Cummins, of Covent Garden, sent a basket of *Brobdignag Sugar Pea*, which bears considerable resemblance to the *Géant* of the French, but is more constant and not so apt to sport as that variety. The pods are of an immense size, five to six inches long, and an inch and a quarter broad, and crooked like a ram's horn.

TO CORRESPONDENTS.

Mowing Machines (*Rusticus*).—Every one of those you mention does its work well; and if we were about to purchase one we should be solely guided by cheapness and neatness.

Night-blooming Cereus not Producing Flowers (*An Old Subscriber*).—We think this was most likely owing to your shifting the plant and treating it afterwards too well, as respects moisture at the roots, and moisture in the atmosphere. It will form roots along the stem anywhere, but seldom does so to any extent, if the roots have a free, open medium to root in, and the atmosphere is warm and dry. Thus treat it now. Keep the plant in the most exposed part of the house to the sun. Give scarcely any water to the roots. After September give none at all, if the plant is in a temperature of from 45° to 50°. If the stems show the least signs of shrivelling, damp or syringe them slightly; but the drier in every way the plant is kept over the winter, and the more light it has, so that the stems do not shrivel the better. Next spring syringe the stems, and ere long water the roots, and if the stems were well dried, and the pots are full of roots you may expect some flowers again. It rarely blooms so freely as some of the others of the same tribe. Your Tydæa is past redemption for this year, if many of the leaves are as bad as the one sent. It has been affected by thrips, and the sun has shone upon it when the leaves were damp. Altogether it has had too much water. Remove all the affected leaves, and let the plant slowly ripen its buds, and try again next year. You may syringe with tobacco water for the thrips. We do not go against authority for oil for such insects on such plants; but we prefer using strong glue water when we have such things, which is very seldom. We would only try oil on plants we cared nothing about.

Cedrus Deodara for the West Coast of Ireland (*E. A. A.*).—The Deodara will grow rapidly in all parts of Connemara from the level of the tide to the top of the highest hill; but you ought to begin with three or four-year-old plants, and if you mean a plantation of it on moory or upland ground, plant it twenty feet apart every way, and fill in between them with Larch, Scotch Fir, Spruce, and Birch. There is a good deal of bother

to get it up from seeds; besides, you cannot buy it unless you hear of a sale of it, when a lot comes over from India, and then, perhaps, not one out of a thousand will sprout. The way you ought to do, is to ask any of those who advertise largely in The Cottage Gardener what they would charge per hundred or thousand plants averaging one foot high. Next October would be just the right time to plant a forest of it in your fine climate.

Brugmansia arborea, &c. (*M. F.*).—Having cut down the old plants last spring, it is not probable that they will flower this cold season; but you must not stop the shoots they have made until the winter is over. If by "Tamarand" you mean "*Tamarisk*," it will now propagate from cuttings not overripe. *Cuttings of Tea-scented Roses* put in under a hand-glass on a warm border will strike readily. Now is a good time to put them in.

Daphne not Blooming (*E. W.*).—It did not want a shift at all this last spring, nor a drop of anything stronger than childrens' tea the whole season, nor yet any compost in the soil. All the Daphnes do better in fresh, sandy loam than in all the "ingredients" under the sun. What you must do is to shake all the old ball from the roots, and put it in a much less pot, well drained, and keep it close in a damp, cold frame, and save it from the sun till the end of September, and do not expect a bloom from it next winter or spring, and if any comes, nip the buds off as soon as you see them. Next April, if the pot is full of roots give it a good shift, but no peat or leaf mould, or any rich water. Rich living is not good for any thick-leaved evergreen plant of slow growth, and you ought to repeat that every week for twelve months, that you might never forget the rule.

Furnishing a Small Greenhouse (*A Constant Reader*).—This, as we have several times shown, is rather a difficult matter, as all depends on taste and the size of the plants desired. However, in a week or two we will do what we can to oblige you.

Transplanted Large Weeping Ash Tree (*Idem*).—Under the circumstances of large size, stiff soil, &c., we should not have expected it to have done much good in the first or second year. As the tree has made so little wood, it would do it little harm to take it up again in October, and plant it afresh in a mound a foot above the natural soil. The mound being formed of sandy, gravelly loam, and a good mixture of leaf mould. In that it will root fast, and soon branches will follow. It will be best to mulch the ground for the first winter to keep out frost. If there is any objection to raising the plants, fork a quantity of sandy loam and leaf mould among the roots, cover with several inches of the same, and place six inches of rotten dung over all, and we are not at all afraid but the tree will please you better next season. Cover the dung with green branches in winter.

Various (*W. Kent*).—The Cucumber will thrive best in a bottom heat of about 80°, and a top heat at night ranging from 60° to 70°. Air is best given at the back of the sash, and in quantities, so as not to depress the temperature unduly, and in proportion as the external air is soft and warm, or cold and dry. In the hot summer months air may be given freely at top and bottom. If you use linings, however, beware that the sash does not come over them. A little one at top at night will always be useful, if the temperature is not unduly reduced. Sun heat may rise after a little air has been given, to 80° and 85°. If more either give more air or shade according to circumstances. These matters have already received minute attention. Your soil ought to suit Box first-rate. If not grown free enough add a little leaf mould. Thin the shoots of Black Currant trees when they are too thick for the sun to mature the buds. Pink pipings obey the general law of cuttings. If kept too close, they would rot and die; if too open, the juices will evaporate. Hence we keep close when the sun shines, and give a little air when it does not. Go not by opinion but by reason of the nature of things. Get and read "Window Gardening for the Many," and you will find all these matters minutely explained.

Mildew on Grapes (*P. Gregory*).—We cannot give you better advice than to persevere dusting the bunches affected, and also every leaf that shows the least sign; and we can only add, in addition to covering your pipes with a solution of sulphur and lime, keep up a fire night and day, provided the water does not get warmer than 160°, and be sure you give enough of air at night to lower your house to from 60° to 65°, and air during the day in proportion to the sun and fire heat. The muggy, close weather, and keeping your house hot, close, and moist at night, has brought this pest upon you. In another year, after washing and cleaning your Vines, use a little sulphur on the pipes all the season. Prevention is better than cure.

Spergula (*T. R.*).—Your plant is *Spergula saginoides* of Linnæus.

Orange Gin.—Some years since I used, when hunting in the counties of Oxford and Northampton, to get at some of the homes of the first-class sporting yeomen, a liqueur known as "orange gin." Can any of your subscribers favour me with a good receipt for it, through the pages of your excellent journal, and oblige—Sheep Dog?

Planting Vines in a Peach-house (*Argus*).—There would be no danger of the roots materially interfering with their neighbours' roots. The great difficulty in such mixed cultivation is keeping the Vines from obstructing the light, so necessary for successful Peach culture.

Various (*J. M.*).—Your plant is *Coleus Blumei pectinatus*, of which you have often heard in The Cottage Gardener. It is a soft stove plant of the easiest culture, requiring the same soil and the same quantity of water all the year round as a good pot Geranium. It comes easier than a Verbena from cuttings, and will do in a greenhouse or window in summer; but it should not be under 50° of heat in winter. The original kind is smooth on the edge of the leaves. Yours is toothed like a comb round the leaves, and "pectinatus" is the meaning of that way. Your Pelargoniums cast their blossoms owing entirely to your way of high feeding them in a season like this, without any sun. Our liquid-tank of awfulalities has not been once opened this season, as it would only make bad worse to use manure water for any plant we have, while last year, during that awful hot weather, we used strong water every other day. Your soil is so strong, and, no doubt, under such a man, very rich indeed, and that has had the same effect on the flowers of the Sweet Peas as your strong water had on the pot Pelargoniums. All Sweet Peas are alike as to height; and what you should do to temper yours, is to sow them all in shallow boxes early in April, and give them a good check by allowing them to remain in the boxes to the middle of May; then to plant them out rather wide apart, then you would dock them of a couple of feet or a yard of their height, and have ten blooms for every one you used to have. The Pentstemon *Murrayanum* is a wonderfully difficult plant to manage. The way to do it is more like one of the delicate Fuchsias than anything else, and in June and July, and the first half of August, not to water the top of the pot; but a saucer under it, but not to be constantly full of water; all that time to see the morning and evening sun only, and in winter to have it half dry in a cold frame.

Heating Water (*Nottinghamiensis*).—Slack coal at 7*s.* per ton will heat the water in one-hundred feet of four-inch piping, much more cheaply than would gas at 3*s*, 1½*d.* per 1000 cubic feet.

Name of Carnation (*G. W.*).—Yours is a double white Carnation, but not dignified by a name. You are wrong in calling it "Clove Carnation," as that kind is crimson, and far more aromatically scented than any of the others.

Name of Petunia (*H. N. P.*).—The flower you sent was so shrivelled it could not be identified.

Names of Ferns (*J. H. Armstrong*).—1. *Polystichum Capense* is a large-growing, *P. coriaceum* a dwarfer plant; yours appears to be one of the forms of the latter. 2. *Lastræa patens*. 3. *Cystopteris fragilis*, var. *angustata*. 4. *Athyrium filix-fœmina*, var. *incisum*. 5. *Asplenium bulbiferum*. 6. *Lastræa dilatata*. 7. *Cystopteris fragilis*. 8. *Cystopteris fragilis*, var. *dentata*. 9. *Adiantum cuneatum*.

Names of Plants (*Guildford*).—No. 1 is *Phlomis fruticosa*. No. 2 is *Leycesteria formosa*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

August 23rd. Settle (Yorkshire). *Sec.*, Rev. J. Robinson, Settle. Entries close August 18th.

August 25th, 27th, 28th, and 29th. Crystal Palace. Summer Show of Poultry, Pigeons, and Rabbits. *Sec.*, Mr. William Houghton. Entries close July 28th.

September 3rd. Heckmondwike. *Sec.*, Mr. Frederick Brearley. Entries close August 24.

September 4th. Pocklington (Yorkshire). *Hon. Sec.*, Mr. Thos. Grant, Pocklington. Entries close August 28th.

September 5th. Mirfield. *Sec.*, Mr. H. Rushforth, Escholt Place, Mirfield. Entries close August 27th.

September 5th. Keighley Agricultural Show. *Sec.*, R. Fawcett. Entries close August 29th.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

FEEDING FOWLS ON MEAT—PRECAUTIONS IN EXHIBITING.

Every season brings its symptoms. In March and in early spring, we have timid letters in very pretty writing, asking advice about hens' eggs, rips, and chickens. Then, as the yards become peopled, we are consulted as to fatting, selection, and market. Now, our readers will feel obliged if we will say a word or two about exhibiting, explain general rules, and give such information as will be useful to those who intend to exhibit at the Crystal Palace.

The first essential is, that the chickens shall agree: if they do not (and those that have been close friends in the yard during their natural lives, will often fall out and fight as soon as they are in close quarters), then not only is success unattainable, but the exhibitor may be prepared to see the cock and one pullet in the pen, and the other bird in a basket underneath, entirely scalped. This is sometimes as much the result of improper feeding as of quarrelling; and, above all, it is caused by giving them meat.

It is strange, that spite of our frequent remonstrances, and of the annoyances that spring from this improper feeding, people will practise it. If they will examine their fowls, they will see they were not made to eat meat; to obviate the difficulty they chop it up for them. They should exercise as much discretion and observance as Cuvier did in his dream. "He was pursued by Bogey; Cuvier ran, Bogey followed. 'I will eat you up,' said he, 'Don't,' said Cuvier, and ran faster. Bogey gained upon him. Cuvier turned round to see how far he was, and then stopped. '*You* eat me up?' said he to Bogey, 'you can't, you divide the hoof, and are not, therefore, carnivorous.'" Fowls do not divide the hoof, but they are not carnivorous.

Next, let the birds be all of the same size. We almost think we would rather see two smaller than one larger and one small in a pen. Show them with clean bright plumage, and clean legs. We are not friendly to confining chickens before a Show; but if it be necessary to wash their plumage, they should be in a pen

full of clean dry straw till they are perfectly dry. When they are washed, the feathers are more wetted internally than they would be by any natural wetting; and, therefore, more liable to become dirty if they were suffered to do that which they certainly would if they could—viz., go from a water to a dust bath. Send them from home with their crops full of soft food—such as sopped bread or meal. Let their basket be high enough to allow them to stand up in it. Let it be of close wicker all round, but covered with canvas on the top.

Now, there is a very proper distinction made between breeds which are judged to a feather, and those that are more esteemed for large size; but it is a mistake to suppose that dwarfishness in one, or an ugly or a dirty plumage in the other, would be meritorious.

In all competition, if you wish decisions to be appreciated and approved by the public, they must be pleasing to the eye. Those decisions, though strictly just, are painful ones to Judges, when it is necessary that their knowledge and experience should be invoked and exercised to justify them. Though strictly correct, they are made difficult of explanation or approval by faults of colour, or by the non-observance of those rules of cleanliness which add so much to the appearance of fowls. It is an assistance to the Judges if the birds are selected and sent with the desire to lessen their task. Exhibitors may do much, and we leave the subject with them.

SALE OF FOWLS AT EXHIBITIONS.

The impartiality of your columns should secure you the respect and attention of amateurs, and all interested in the poultry question.

Those who have had experience in these matters know as many sales are not to be expected at a chicken show as at a general winter exhibition, but seeing that most of them take place soon after the Show opens, and that often twenty or more claimants are asking for the attention of the solitary clerk in the office, it has occurred to me to ask you to suggest an increase in the staff, for that day only. An intelligent lad would answer the purpose; as all that is required of him is, that as fast as a pen is sold he shall note the same in a proper book, so that if reference be made to it it will be seen at once it is sold. This will prevent the sale of the same pen to two or three people, as was the case in February.—Probable Purchaser.

PRICES OF POULTRY AT EXHIBITIONS—CRYSTAL PALACE CATALOGUE.

The Crystal Palace Poultry Show is approaching; the recurrence of this treat calls to mind one or two things, of which I fshould like to say a word. I wish to ask why people who have owls for sale will not act like sane people, and ask such prices as buyers are likely to give. The prices usually named are simply ridiculous. At the last Show I really wished to purchase, and looked over the catalogue and selected several pens I thought desirable; but on looking at the prices it became painfully evident that the owners of the fowls either were or ought to be inmates of Bedlam. Imagine one hundred guineas for a cock and two hens! Can anything be more absurd?

If the Directors of the Palace compel all the exhibitors to fix a price at which to sell, whether they wish to sell or not, then the absurdity rests with the Directors, and they should pack off to Bedlam. Still some of the exhibitors must pack off too. Take an instance of absurdity run mad: the owner of the first-prize Game cock was content with five guineas; the second-prize bird was marked £20; the third fifteen guineas; and one that did not take a prize at all was modestly marked at £1000!

Please, also, let me say, it would be a great convenience if the catalogues could be ready earlier. I could not get one at the last Show until I was on the point of leaving. Why not have them at the news-shops some days before the Show?—Emily.

[The exorbitant prices you mention are intended to be prohibitory—the owners do not wish to sell the birds. We never could see any reason why "Not for sale" should not be used on such occasions. It is quite certain that such prices have nothing to do with the real value of the birds.

We quite agree with you that the catalogue department of the Crystal Palace Poultry Show needs great alteration. Many intending purchasers leave without purchasing, because they cannot early in the day have catalogues stating owners and prices. It would not do to sell the catalogues before the day of exhibition, because the Judges are not supposed to know, and ought not to know, to whom the pens belong until after they have awarded the prizes.

The catalogues might be ready by the time the Show opens, and every one having a catalogue might be entitled to a prize-list as soon as printed later in the day.]

A FELLOW-SUFFERER WITH "E. C."

I agreed to exchange (with I have no doubt the same man as your correspondent "E. C.") a couple of Black Spanish fowls for the pen of Piles which took first prize at Skipton.

I sent my Spanish fowls, and in return he sent me a *Pile Game cock* and two *White* Game hens, about six years old, and with but *four eyes* between the three birds.

I returned the fowls as worthless, and he then agreed to exchange for a pen of Duckwing Game; but these fowls succeeded in taking second prize at Thorne the day they were to have been sent to me, and he then very coolly writes to say that unless I give him a consideration, as well as my Spanish fowls, he shall not exchange, and returns my fowls with carriage to pay.

[The party is the same as victimised "E. C." If we hear any more such transactions, we will publish his name and address. —Eds.]

CRYSTAL PALACE.

In consequence of the lateness of the season the general excursions to the Palace have been somewhat delayed this year. They are now, however, in full swing. Scarcely a day elapses without numerous excursions of schools, charitable institutions, or large bodies of workmen. The coming six weeks being full of special attractions, great numbers are likely to visit the Palace. For instance: the Great Summer Poultry Show, which always attracts large numbers of provincial visitors, takes place in the last week in August. This is followed on the 30th of August by a special day set apart for amusements provided by Mr. Strange, the energetic contractor for the refreshment department. On the 1st of September the Hollyhock Show will be held. In the following week the Tonic Sol Fa Association hold a contest of singing societies, a party of Scotch vocalists coming expressly from Edinburgh to sing some of their national airs. On Thursday, the 13th of September, the Licensed Victuallers hold a great festival for the benefit of their Asylum. A performance by about 2,000 voices of Mr. Martin's glees, which were so successfully produced at Exeter Hall last month, will take place on Saturday, the 15th of September; and on the 19th and 20th of the same month the Autumn Dahlia and Fruit Show; and on two of the last days of September Madame Clara Novello, who is coming to England on her farewell tour, will sing for the last time in the "Creation" and "Messiah," two performances of which will be got up with great force under the direction of Mr. Benedict.

REPLY TO "BOUGHT EGGS UNPRODUCTIVE."

I left home early in May, and have never had the pleasure of seeing The Poultry Chronicle since, until this day, when I met with an old friend who kindly lent it me; and the first article I stumbled upon was "Bought Eggs Unproductive."

Now I, being the person alluded to who sold the eggs, will state the whole transaction, and leave your numerous readers to pass their own verdict; as I think by the word "deceived," which Mr. Brooke uses, he gives a little extra colouring to the affair. Although he does not publish my name he may mention it in private, which might equally injure my character; and being clear of what he accuses me, I will now out with the whole 10*s.* 6*d.* worth.

Mr. Brooke wrote to me to know the price of a pen of birds I had for sale, which he afterwards refused to purchase at the stated price, but would take a sitting of eggs, which I supplied. At the end of three weeks I got a note to say they were all bad; but requested another sitting, or part of a sitting, to compensate his loss, also informing me of having eleven chicks from Mr. Dixon's eggs. I wrote back, expressing myself sorry for his ill luck, which I could not account for, and told him I would send another sitting for 2*s.*, charging 1*s.* eggs and 1*s.* package; but

would be glad to sell him the fowls, as I thought they might do better for him. "Now for the pushing." Informing him that I was eager to sell, owing to being thrown out of my situation through circumstances over which I had no control, and was compelled to keep the birds in a pigstye, and would let him have them at a reduced price, soliciting his assistance to procure for me a situation in his district, if in his power. He kindly replied he would do so when an opportunity offered, &c.

But I must return to the egg question, and hasten to conclude. I sent the second sitting of eggs, and left home two days after, and never heard whether they arrived, nor yet received the 2*s*. In the course of a week the birds were sold; and if he has a better pen from his eleven chicks he will be fortunate. They were only shown twice; receiving once a prize, and once highly commended. I have bred birds which have taken prizes and highly commended at most of the principal shows in England and Scotland; and when I have sold eggs I sent them from my best stock, undipped or tampered with, but could not vouch for their fertility. I have sent into Essex, where they have proved good. I have sat hens at home on eggs from the same birds, when they have failed. And if Mr. B. will take the trouble of asking H. W. B. Berwick, Esq. how many he has sat this year which turned out somewhat similar as he describes, and also inquire of him my character, "as we have had many dealings together," I will leave myself in his power to speak of me as he always found; then Mr. B. will, perhaps be satisfied whether he was deceived.—M. Cooper, *Helmsley*.

A BROODY BANTAM COCK—USE OF ADDLED EGGS.

Allow me to add a curious fact which may interest your readers. I have a pen of Black Red Game Bantams. One hen had chickens five weeks old when I sent the cock away to a Show. Upon his return the hen had begun to lay again, and the cock took to the chickens, brooded, and fed them like their own mother. I quite back up the remarks made in one of your numbers with regard to addled eggs. If the eggs of a sitting from which no chickens have been hatched are boiled, they are in most cases much relished by the poultry. If barren eggs, they are hardly worse than fresh. I have, also, found it a good plan to examine the eggs at a week's end whenever the hen is off her nest, and to remove those which are uniformly transparent. They are quite good for cooking, and not altogether objectionable for eating if there be any scarcity of eggs.

Will you in your next give me your opinion of my feeding. The soft food consists of ground or rather bruised oats, barley-meal, and pollard, equal parts, mixed into a paste as dry as possible, and given lukewarm. The only grain I use is Indian corn whole, and I find fowls will take no other grain when they can get this. Even chickens a few weeks old swallow it with eagerness, and prefer it to any food. Besides this, they have the scraps from the plates mixed with their food, and eat what grass they like. Chickens for the first fortnight I usually feed on bread-crumbs or oatcake, milk, and scraps; but I have had fearful mortality in chickens this year, about sixty per cent., though I never have an adult fowl sick. I have always had that mixture of ginger and pepper, recommended as a preventive and cure for gapes, in one of your numbers. I must confess, however, that I have no faith in it from this season's experience.

Can you tell me whether Toulouse Geese are as troublesome in getting through and over low fences as common Geese? I have been using the latter as mowing machines, but they are too fond of roaming to be quite satisfactory.—Ignoramus.

[We should substitute oats or barley for Indian corn. Toulouse Geese are not given to roaming.]

ROSENDALE POULTRY EXHIBITION.

This was held on the 9th inst. at Waterfoot. The weather, with the exception of a slight shower, being fine, the attendance was very numerous, the show-ground and village being completely thronged with visitors.

With the exception of the classes for *Single Game Cocks* and that for *Game Cockerels* old and young, competed together, Silver-pencilled *Hamburghs* were first on the list. Mr. Dixon took the first prize with a good pen of old birds. The second prize went to a pen of chickens belonging to Mr. Robinson. In Golden-pencilled, Mr. Cannan was first with a beautiful pen of chickens. The second prize went to old birds; one of the pullets exhibited by Capt. Munn was very beautiful. Silver-spangled *Hamburghs* were the best class in the Show as regards quality, and contained twelve entries; five of the pens were nearly equal in merit; and, if we mistake not, the pen of chickens belonging to Mr. Andrews that took the second prize will soon be more than a match for Mr. Dixon's old birds, though the latter have taken so many first prizes. In Golden-spangled *Hamburghs* Mr. Kershaw was first, and Mr. Ashcroft second, both with old birds. In *Game of any colour*, the first prize went to a pen of Black Reds belonging to Mr. Grimshaw. A pen of Brown Reds belonging to the same gentleman, though good birds, lost all chance through the cock being in deep moult. The second prize went to Duckwing chickens. The class for "Any other variety" contained very good pens of Cochins, Golden-spangled Polands, Sultans, Dorkings, Brahmas, Cuckoo, Creoles, Spanish, and White-crested Black Polands. Though Hamburghs and Game are the breeds principally kept in the locality, we trust the beautiful birds exhibited in this class will induce the Committee to extend their classification to Spanish, Dorkings, Cochins, and Polands next year. The beautiful pen of White-crested Black *Polands* deserve especial notice. The *Single Game Cock* class brought fourteen entries. The first-prize bird was a beautiful close-feathered Brown Red; the second prize went to a Black Red. We noticed several birds in this class which lost all chance of a prize by the absurd practice of trimming: one very fine bird was completely bald. *Bantams* were all classed together, a very nice pen of Gold-laced taking the first prize.

The class for *Ducks* contained some very good Aylesbury. *Turkeys* brought four entries, and *Geese* five. A prize of £1, the gift of James Munn, Esq., of Heath Hill, Stackstead, for the best three pullets of any breed, the property of a cottager under £8 rental, brought together some very good Hamburghs.

The prizes were awarded by Mr. Teebay, of Preston.

Hamburghs (Silver-pencilled).—First, J. Dixon, Bradford. Second, J. Robinson, Vale House, Garstang.

Hamburghs (Golden-pencilled).—First, W. Cannan, Bradford. Second, J. Dixon, Bradford. Highly Commended, Capt. Munn, Thistle Mount.

Hamburghs (Silver-spangled).—First, J. Dixon, Bradford. Second, J. Andrews, Waterhouses, Ashton-under-Lyne. Highly Commended, W. Cannan, Bradford; J. Ashcroft, Waterloo, Ashton-under-Lyne; J. Robinson, Vale House, Garstang. Commended, J. Fielding, Whitewell Vale.

Hamburghs (Golden-spangled).—First, W. Kershaw, Heywood. Second, J. Ashcroft, Ashton-under-Lyne.

Game (any colour).—First, W. and N. Grimshaw, Bank House, near Burnley. Second, W. Agirton, Earby, Yorkshire.

Any other Variety.—Prize, J. Dixon, Bradford (Spanish). Highly Commended, W. Cannan, Bradford; S. Whitehead, Wales House; S. H. Hyde, Ashton-under-Lyne. Commended, J. Robinson, Vale House, Garstang.

Single Game Cocks.—First, R. Garton, Tottington Hall. Second, W. & N. Grimshaw, Bank House, Burnley. Highly Commended, W. Kershaw, Heywood; J. Cowgill, Thornton, near Skipton. Commended, J. Stansfield, Waterfoot.

Game Cockerels.—First, R. Gorton, Tottington Hall. Second, W. & N. Grimshaw, Bank House, Burnley. Highly Commended, J. Cowgill, Thornton, near Skipton.

Bantams.—Prize, W. Cannan, Bradford.

Ducks.—Prize, J. Robinson, Vale House, Garstang. Highly Commended, A. Warburton, Topwood, Ramsbottom.

Turkeys.—Prize, J. Dixon, Bradford.

Geese.—Prize, W. Cannan, Bradford. Highly Commended, W. Kershaw, Heywood; B. Baxter, Ellslack Hall, Skipton.

Three Pullets of any distinct breed, the property of a Cottager under £8 rental, the gift of James Munn, Esq.—Prize, E. Wood, Newchurch. Highly Commended, T. Leach, Whitworth; H. Cunliff, Oaken Head Wood; J. Andrews, Ashton-under-Lyne.

RED WORM IN PHEASANTS.

I some few years ago had a correspondence with you relative to the red worm, so fatal in the windpipe of Pheasants. Since then I have sought considerable experience on the subject. My chief aim has been to discover the origin of its existence. I found a worm similar in form and structure to exist in water-butts, under pumps, &c., and this led me to infer the ova of the worm exist in the water. To test this theory I had water boiled, and as soon as the young birds had drunk, the water was spilled. This to a very considerable extent prevented the liability, but it was an experiment difficult to carry out. I prevailed upon several keepers to try it, but whether they were sufficiently careful is doubtful. I perfectly succeeded with my own, but whether

from this or other causes, I am doubtful. To boil the water and leave it would possibly be ineffective, as the worm may be from an egg deposited by a fly, as the common caterpillar; or a better illustration would be the gnat, which lays its egg in the water. I find, as in the case of all other parasites, they are first seen on those subjects impoverished. I find healthy, vigorous birds are free from them, though I am aware it is difficult to prove if the unhealthy condition be the cause or the effect. The turpentine on a feather is a sure cure, if taken in time. You told me you were making some experiments, I think, on the water. Young birds are dying this season by wholesale. I know several keepers who have lost hundreds. I have thought of sending some specimens to the Entomological Society. Those I have found in water are darker in colour, and larger in size; but this may be accounted for by the different elements they are existing in.

A friend of mine tells me you have published a little treatise on rearing Pheasants. I should like to see this, and what you there say on this subject. Most mistaken ideas prevail as to the way they cause death. The presence of these vermin in the windpipe causes difficulty of breathing, which is greatly increased by the exertion of feeding, consequently they die of inanition. I should be very pleased to hear your opinion of my theory.

I this year have a white Pheasant *alone* with a cock. She has laid thirty-seven eggs, all addled. How is this?—Suffolk.

BUGS AND MARTENS.

I believe some individuals of Swallows and Martens are sometimes much infested by a kind of fly, called, I think, the Ornithomca; the young of which, somewhat resembling a bug, are, perhaps, mistaken by your correspondents for that disagreeable insect. This fly, I am informed, is analagous to the Hippobosca, or New Forest Fly, so troublesome to horses. Would it not be advisable for your correspondents to submit some of these insects to the inspection of some competent entomologist, who would, doubtless, clear up the fact?—B. P. Brent.

LIGURIAN BEES—FEEDING BEES.

On the 22nd ult. I joined a Ligurian queen to a stock in a common straw hive, and on Friday, the 10th inst., I observed that they had thrown out a great many drones like the enclosed. Can you tell me if these are Ligurian drones, or the common ones? Would you also be so good as to say, if the food given to bees—viz, sugar and honey, will do for them feeding their young on, as I fancy I now have two hives with Ligurian queens doing well; only the weather here is so much against them, that I do not think they can get much honey from the flowers, as we have not seen the sun for this last week, and have had rain nearly every day, and no signs of a change. I also observe my glass hives are turning out both old and young drones.

I got only a few Ligurian bees with one queen, and the other day picked up one dead, and to-day have found another. What do you think is the cause of their death? Messrs. Neighbour say the black bees always kill the Ligurian, but they have not done so with me.—J. W. W.

[The drones enclosed by our correspondent are of the common species (*Apis mellifica*). Drones take twenty-four days at the very least to come to maturity, so that they could not possibly be the offspring of the Ligurian queen. Neither sugar nor honey will alone suffice for the sustenance of brood. Pollen is certainly requisite, and for this rye meal has been recommended as a substitute. We hear the same unfavourable accounts of the honey season from all quarters. Single deaths amongst bees are of constant occurrence, and it is quite impossible to assign a reason for each. Workers accompanying a strange queen are generally slaughtered, but the exceptions to this rule are numerous.]

DRONE BEES VISITING VARIOUS HIVES.

That drone bees may enter with impunity any hive in which the male sex is tolerated was a well-known fact long before the existence of the present generation of bee-keepers; but it is equally certain that they very seldom avail themselves of this privilege. A sufficient proof of this is often afforded by one stock in an apiary commencing the annual destruction of drones some time before the others, in which case it will be found that as a rule the unfortunates submit to their fate without attempting to prolong their existence by seeking the friendly shelter of another hive. During the unseasonable persecution which destroyed the great majority of my Ligurian drones in June, I succeeded in rescuing a few from destruction, by introducing them into hives in which the queens were in course of development; but the drones themselves, in no one instance, appeared to seek of their own accord the safe harbour of these cities of refuge. I had hopes of throwing some light upon this question of interbreeding when commencing the rearing of Ligurian queens; but, unfortunately, the queen whose true impregnation was to have enlightened me on the point, fell a victim to her own mistake in attempting to enter an adjoining hive on returning from a nuptial excursion. My own opinion is, that queen bees in a state of nature are almost always fertilised by the offspring of the same mother. The locating a number of stocks in a limited space is altogether artificial. Colonies of bees in their natural state are generally at a distance from each other, and in this case interbreeding is certain. Even in crowded apiaries I believe the probabilities to be in favour of the same result; whilst the fact that no queens are produced in the spring until there are drones in the same hive to fertilise them, and that drones are preserved in queenless stocks in autumn, impels me to the conclusion that Nature has so constituted a colony of bees as to render it in all respects a self-propagating community.—A Devonshire Bee-keeper.

OUR LETTER BOX.

Pigeon Cote infested by Bugs (*A. S. L. M.*).—Try the Gishurst Compound. Its proprietors say that it destroys them. We never heard of bugs driving Pigeons from their nests before. Do Martens build about the cote?

Poultry Advertisement (*J. B. U.*).—For five lines (about sixty words) three shillings and sixpence; and sixpence for every additional line.

Disease in Pigeons.—Can any of your readers inform me of a cure for a disease which proved fatal to a few of my birds? They droop and decline gradually, getting quite rigid and stiff long before death. I have had them eight days in life after becoming powerless, and when crammed the Beans stuck in the throat until pressed down. Their feathers keep smooth and unruffled. I should be glad to learn the nature of this disease, and a cure, if possible.—J. R.

[We do not know anything of this disease. What are the preliminary symptoms?—Eds.]

Sickness in Fowls (*A. C. S.*).—There must be some cause for the sickness of your fowls, yet all you have mentioned is in favour of their health, except the feeding on Indian corn. What is the flooring of your poultry house? Is it wood, stone, brick, or asphalte? If it is, the cause is partly there. What breed of fowls do you keep? Are they Brahmas, Cochins, Spanish, Hamburghs, or Game? They will bear the confinement best. Were they healthy when first put up? If the floor be either of the above-named materials, and if it be inconvenient to remove them, cover it six inches deep in loose gravel. If the run affords no grass, give the fowls large, heavy-growing sods of it every day. Feed them three times per day on oatmeal slaked with milk, and precede each meal by some bread soaked in strong ale. If this does not answer, get rid of your sickly birds. Have the house lime-whited throughout, and begin afresh. In six week's time, with a young stock of any of the above breeds, you will have no trouble.

Canary with Wounded Foot (*Brahma*).—When Canaries are allowed wool, silk, or even cotton to build their nests with, they are very apt to get it entangled about their feet. The fine threads get drawn tight round the toes and buried in the flesh and produce the sores your correspondent complains of. If not relieved it will cause the toes to drop off. Let "Brahma" examine the cuts, and with a needle prick out the fine threads or hairs that are there hidden, and the sores will soon heal. Care should be taken not to allow the bird anything likely to twist about the feet again. I know very little of the diseases of cage birds. No doubt there are many, but few have come under my notice. I am inclined to think the greater number arise from over-feeding, too stimulating food, carelessness, and mismanagement. We do not know of a really good book on the diseases of cage birds, and shall feel greatly obliged if any of our correspondents will oblige us with any remedies they may have found efficacious. If all will oblige us, we do not doubt of being able to offer a summary of cures that may be useful to fanciers. Each contributor, while imparting information, will derive mutual benefit.—B. P. Brent.

LONDON MARKETS.—August 20.

POULTRY.

The London season is over, and the market feels the effect of it. The supply is, however, as it has been all the year—very moderate. Grouse have come in plentifully. Those from the English moors are very good; and the young birds are in a large majority, while the Scotch boxes are full of old birds, and many of those very skeletons.

Each—	s.	d.		s.	d.	Each—	s.	d.		s.	d.
Large Fowls	4	0	to	4	6	Turkeys	0	0	to	0	0
Smaller Fowls	3	0	,,	3	6	Guinea Fowls	0	0	,,	0	0
Chickens	1	9	,,	2	6	Pigeons	0	7	,,	0	8
Geese	6	6	,,	7	0	Grouse	2	6	,,	4	0
Goslings	0	0	,,	0	0	Leverets	3	6	,,	4	0
Ducks	2	6	,,	3	3	Rabbits	1	4	,,	1	5
Ducklings	0	0	,,	0	0	Wild ditto	0	8	,,	0	9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	AUG. 21—SEPT. 3, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock bef. Sun.	Day of Year.
28	Tu	Stachys palustris.	29.918—29.771	72—42	S.W.	.01	8 af 5	54 af 6	38 1	12	0 58	241
29	W	Scutellaria galericulata.	29.860—29.547	72—45	S.W.	.16	10 5	52 6	52 2	13	0 40	242
30	Th	Althæa officinalis.	29.553—29.549	63—43	S.W.	.20	11 5	50 6	4 4	14	0 22	243
31	F	Pisum maritimum.	29.608—29.546	62—49	S.W.	—	13 5	47 6	rises	☺	0 3	244
1	S	Fumaria capreolata.	29.618—29.573	65—42	S.W.	—	15 5	45 6	43 6	16	0 16	245
2	Sun	13 Sunday after Trinity.	29.790—29.575	65—54	S.W.	.18	16 5	43 6	56 6	17	0 35	246
3	M	Trifolium fragiferum.	29.908—29.806	70—39	N.W.	—	18 5	41 6	10 7	18	0 54	247

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 71.2° and 48.5° respectively. The greatest heat, 85°, occurred on the 1st, in 1843; and the lowest cold, 32°, on the 29th, in 1850. During the period 144 days were fine, and on 87 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Artichokes, cut down the flower-stalks, and remove the dead leaves from the old plantations. *Cabbages*, continue to plant out for Coleworts at every favourable opportunity. Prick out the young plants intended for the main spring crop. *Celery*, earth up, previously removing all suckers. *Dwarf Kidney Beans*, continue to gather them closely, to prolong their productiveness. *Leeks*, plant out the thinnings of the seed-bed. *Onions*, to be taken up, dried, and housed. *Peas*, remove them if mildewed immediately they are done with. *Savoys*, draw earth to their stems, and to all other such crops that require it. Every spare piece of ground should now be planted with late Coleworts, and all other such crops, to compensate in some measure for the loss of the Potato crop, that is by all accounts so generally likely to occur. *Shallots*, to be taken up, and housed in a dry, warm room. *Turnips*, sow the last crop for the season.

FLOWER GARDEN.

Repot Auriculas in a compost of leaf mould and loam. Continue to put out Pink pipings. Plant out seedling Pansies; cuttings put in now will strike freely. The layers of Carnations and Picotees when rooted to be planted out. If intended for pot culture, when potted to be gently watered, and when dry to be placed on a bottom of coal ashes, and kept close in a frame for a few days, and then gradually but ultimately to be exposed to the air as much as possible, being careful not to allow them to get drenched or soddened with wet. The Moss and Provence Roses intended for forcing, if plunged in the ground to be turned round to break the roots at the bottom of the pots, and every gross sucker shoot to be cut away. Continue to fill up blanks, to stake and tie up, to mow, clean and roll as usual.

FRUIT GARDEN.

When Peaches and Nectarines begin to ripen it is advisable to fix nets (Haythorn's is excellent for the purpose) or mats to catch the fruit. The fruit is at all times best gathered by the hand, but even with the strictest attention some will fall, and if no means are used to catch them they will be bruised and spoiled. The net to hang so loose as to form an open bag with a little hay, moss, and any other soft material at the bottom. As soon as the fruit has been gathered a portion of the shoots that have borne fruit may be cut out to allow more space for the shoots of the present year's growth to ripen the wood for a crop next year. Cut out, if not already done, the suckers from Raspberries, leaving only from four to six, according to the strength of the stool, for bearing next year. Plant runners of the Hautbois Strawberry about six or eight inches apart in beds.

STOVE.

Continue to follow out the principle of ripening growths for the winter, and to increase the amount of air at every favourable opportunity, and to gradually decrease the amount of atmospheric moisture.

GREENHOUSE AND CONSERVATORY.

Where Camellias, Chinese Azaleas, and the Indian hybrid Rhododendrons were not potted in the spring and require shifting, the present is a favourable time for that operation, as the young wood is now getting matured, and the flower-buds perceptible. They delight in sandy peat, with a portion of loam for the Camellias, and good drainage for all. Sow in pots a few of the more showy annuals—such as Collinsias, Clarkias, Leptosiphons, Nemophilas, &c., to be kept in frames during the winter. They will be useful to enliven the shelves of the greenhouse or the flower-beds and borders in early spring. Pelargoniums to have their wood well ripened by exposure to sun and air, by which their strength will be husbanded and their constitution improved. If Grapes are to be ripened this season in a greenhouse they must have plenty of warmth, a dry atmosphere, and a free circulation of air day and night. As to the application of fire heat, whether it be January or September, it is advisable if the house is too cold or too damp to apply it to bring them to perfection.

PITS AND FRAMES.

Sow Mignonette in pots, to be kept in a pit or frame until they are thinned, and when they get stocky to be removed to the shelves of a greenhouse. Late Melons will require every attention both in regard to atmospheric warmth and bottom heat; to be sprinkled over head twice or thrice a-week about eight o'clock in the morning to keep down insects and the leaves in a healthy condition. Lose not a day in putting in an abundance of cuttings for next season. W. Keane.

CRYSTAL PALACE GARDENS IN 1860.

As the English language comprehends but three degrees of comparison, while the Gaelic includes nearly if not altogether twice as many, I should be fair in my estimate of the effects of this exceptional season on our flower-gardening if I only referred to the three best examples of the craft within my home circuit; although in the spirit of my grandmother and Ossian, I might covet the full cardinal number, and give the comparison full sevenfold. But the cardinal points for the present must be Hampton Court, Kew, and the Crystal Palace, or the same reversed.

The planting of the beds at Sydenham was detailed, or given in detail, soon after it had been accomplished; but that detail will not quite tally with present appearances—owing, firstly, to some failures which had to be made good, and, secondly, to my want of vision on the lee side of the Rose Mount; where I, innocently enough, mistook *Perilla Nankinensis* for a very different thing indeed, and where I said the very different thing was in "concentric rings" with *Flower of the Day* Geranium. Just look, in your mind, and see if you can make it out now that it is pointed at, what a man like me could mistake for a Perilla. Of course, I shall say it was a lucky mistake on two grounds:—the first, that they may not have the laugh against me for making such a blunder;

and secondly, that no one found it out and pulled me over the coals for saying that which was certainly far from the mark. But think over what it could be till I come round to that side of the Mount.

Verbenas have not suffered so much here as at either Hampton Court or Kew, nor have the Petunias either. Even the delicate *Shrubland Rose* Petunia is in good leaf, and some purple kinds are overgrown and giving very few blooms. All the Variegated, as in other places, are first-rate here. *Dandy* as much as any of them. *Bijou* and *Alma* are the best trussers, and the best scarlet flowers of all their *Variegatas;* and the former is much the best grower this season, and in most places in all seasons. The *Cottage Maid* Horseshoe Geranium is this season the best Scarlet Geranium near London; a dozen beds of it were in full perfection. *Crystal Palace Scarlet* is their second-best this year. *Attraction* is their next best dwarf Scarlet; and both are very far better than *Tom Thumb* in neighbouring gardens, for now they will not admit *Tom* into the Crystal Palace grounds. *Punch* and *Cerise Unique* are both first-rate, but not of such free growth as usual. *Rubens* has earned their prize medal for a match pair of beds on the Rose Mount. No more pigs with one ear are to be assembled there, and that scandal of our fair fame will be got rid of at last. A Robin Hood with a red stocking and a yellow stocking would be no more like Sir Walter Scott's Robin Hood than a Scarlet Geranium-bed on the right side of a walk, and a yellow Calceolaria-bed on the left side opposite to it, would be like doing the thing as it should be done.

I happened to be there on the Foresters' day, when nearly 70,000 were in the grounds; and I could see that the garden was not one square yard too big for such a number of such people—I mean people who can enjoy themselves and romp about in public, just as I have often seen peerage people do, and not break their bones in private gardens and at pic-nics of their own making. Human nature is the same, fix it how you will, as Sam Slick would say.

Calceolaria integrifolia, the wild species, here called *Ferguson's floribunda*, is in all the beds as fine as any Calceolaria-bed was ever seen in this world, proving Old Moore's Almanac about "cold, cloudy, soft rain" being just the thing for the Hesperian Calceolarias; while *aurea floribunda* has not been one-fourth-rate, and no other Calceolaria could open a bud. All from the end of last June *Calceolaria amplexicaulis* was one mass of sterling beauty in Kew Gardens; here, six weeks later, it was just "showing." So there must be two distinct kinds of *amplexicaulis*, as Mr. Scott, of the Crewkerne Nurseries, always asserted in his flower-garden catalogues; and every one who has the late kind, or thinks so, ought to procure the one at Kew and prove the difference. I always understood that to be owing to the different ways of managing it, and I must find out how they do it here and at Kew; but to find a thing of the kind among so many thousands was against Nature altogether. *Princess Royal*, of the *Lucia rosea* caste, is only a fourth-rate bedder this season; and *Tom Thumb's Bride*, or the strongest of the same race, is very little better; while the dwarf delicate-looking *Pink Pet* does famously. *Pink Pet* at Shrubland Park would hardly keep a leaf on in a dry season. "The Doctor's Boy" had a good successor to it, which I lost last winter; and our friend the Tritoma uvaria seedsman sent me six plants of a seedling of the same stamp and colour of this *Pink Pet*, which has done famously with me this summer. *Christine* kept up a long time under adverse circumstances, but is now, or was then, falling back. *St. Claire* variegated Geranium and *Kingsbury Pet*, two kinds that are apt to get singed in the sun, have done famously; and *Farfugium grande* grows, like Capt. Trevor Clarke's and other people's Begonias out of doors—that is, like Cabbages and Broccoli (see page 313). All that is free and easy talk: now look at my notes, and see if it be all the same there.

The first corner bed opposite the railway-entrance is of *Cottage Maid* edged by *Flower of the Day*—perfection itself. *Tropæolum elegans* remarkably well everywhere, and *Tropæolum Triomphe de Hyris* much like *elegans* in all respects save the flowers, which are large, and of a rich light orange tint, with black spots; it is this season a little more leafy than *elegans*, but in ordinary weather it will be quite as useful as *elegans*. *Alma* variegated Geraniums, and other variegated kinds, with *Empress Eugenie* and *Verbena pulchella* to cover the ground quickly, are all very good; and that plan has the farther advantage, that you can take up these variegated Geraniums sooner in the autumn without making a blank bed till the frost is sufficiently severe to injure this hardy Verbena, which soon covers the rest of the bed when the Geraniums are potted. *Verbena Sabiniana* is used the same way, and is two degrees stronger than these striped varieties of *pulchella*. I mentioned *Sabiniana* in my notes on Hampton Court, but being only a dull purple flower, like *pulchella* plain, it is only fit for such large places, where a little of everything tells to advantage. Nosegay *Fothergillii*, edged with *Princess Royal*, is good, but not so bright as was its wont since 1816; the last summer to be compared to this. *Mrs. Vernon* Nosegay the same, which needs a scarlet by the side of it to bring out its pink-purple tint. *Ignescens superba* edged with Variegated Alyssum nine or ten inches wide, in full bloom, and not clipped, made several most perfect beds; and their *King Rufus*, which is more like *Rouge et Noir*, this wet season the same. *Calceolaria integrifolia* in perfect mass, never seen more even, or in better bloom. The *Purple King* Verbena which edges it, or is set in contrast with it, about one-half so good as usual, and as fair as anywhere else about London. The Verbena *Defiance* one-half, and *Mangles' Variegated* Geranium, make an excellent bed; but none of the Verbenas here are so flowery or so good as *Lord Raglan*, both at Kew and Hampton Court. *Lord Raglan* is the best of all the Verbenas I have seen this season. The *Unique* Geranium, edged with two rows of *Dandy*, is most healthy—not too much growth or leaf, but only one-third of its usual flowers, under proper management.

Brilliant Geranium remarkably well variegated, and edged with a broad band of *Lady Plymouth*, makes a charming bed. Surely there are two kinds of this *Brilliant*, one of which is never well variegated. A little mass of the variegated Verbena, *Empress Eugenie*, half-and-half with *Dandy*, under a Holly, is most lovely.

Petunias all under a cloud. Lantanas very healthy. *Sellowii* half in bloom. *Crocea* going that way. *Lobelia speciosa* remarkably good, and not a single failure all over the garden. It is mostly from cuttings, and it will soon degenerate from seeds, sure as fate. There is a marked improved variety of it here from seeds saved last season, when none other was in the garden. This has a larger white eye, and a brighter blue, but the same habit as the old one. This will be the apple of the eye, and the *Crystal Palace* Lobelia, no doubt; and next year the white of the eye will be turned up imploringly to get a morsel of it. A large corner bed of *Punch*—dear old fellow—resting on the most perfect edging of Variegated Alyssum. *Salvia patens*, not trained, in fine bloom. *Flower of the Day* in rings, one within the other, or concentric, the intermediate rings of purple Spinach, *alias* Perilla of that random recollection. This is the best telling bed in the whole garden. The seeds of that charming purple came from Mr. Henderson, at Trentham; but whether he beds it there, or sends it in to the cooks for a side-dish of novel aspect, they did not say. Mr. Clark down at Lord Darnley's grows it by the yard, but grows it for what I did not learn. This is a true purple; Perilla is a bronze. The first time I saw it was about 1817 or 1818, in the compost-yard at Beaufort Castle, above Inverness. It was from self-sown seeds on a muck-heap; but I forgot how high it stood, and I never saw it from then till now.

So it cannot be a very common thing, and no wonder that none of the new gardeners could tell the name of it, more than that it was the purple Spinach. The old name is Garden Orach, *Atriplex hortensis rubra.* It is said to be a native of Tartary, and to have been introduced three hundred years back. The green Orach was cultivated for the kitchen as late as Miller's time, "though in general it was not esteemed amongst the English; but the French (then) cultivated this plant for use."

The prince of gardeners goes on to say, "There are three or four varieties of this, whose difference is only in the colour of the plants, one of which is of a deep green, another of a dark purple (our Crystal Palace bedder), and a third with green leaves and purple borders (*Rex* of course). These are generally supposed to be only accidental varieties which have come from the same seeds;" but in thirty years which he cultivated these sorts, he never yet observed them to vary. What do you think of it now?

"There is cauld Kale in Aberdeen,
And Castocks in Strathbogie,"

but at the Crystal Palace there is purple Spinach to match every mortal thing that is woolly, white, or variegated, from here to the banks of the Alma, or on to Tartary whence we had them; therefore, they must be as hardy as any Siberian plant. A basket of plants of *Stachys lanata*, and a packet of seeds of this purple contrast, would be as bread and jam to a schoolboy over in New York, where our whites and contrasts do not do so well as here. My word for it, old gardeners and old authors are the best authorities for old plants in young hands. Just hear what Miller said of the seeds in that packet:—"These plants are annual, so must be sown for use at Michaelmas, soon after the seeds are ripe, at which time it generally succeeds better than when it is sown in the spring." The whole treatment from sowing time till April is the same as that for Wheat, to keep it from weeds and "varmint." It will come from cuttings as fast as anything, and if kept from seeding it goes on the whole season like Mignonette. Even if it were half grown at the time of bedding out, it will transplant as easily as Asters, and should in that state be planted laid on its side, and to regulate it afterwards by pinching off aspiring tops, as is done with Variegated Mint. But recollect we must never call it purple Spinach, as that would take the shine out of it at once; and as *Atriplex hortensis* is rather pompous for everyday use, we had better say "purple Orach," sounding it like Orage. That will be how The Cottage Gardener will say, till some one will discover the *Rex* variety with "green leaves and purple borders."

Sidonia, one of the very finest bedders of the very old Geraniums, has been one mass of bloom the whole season, the plants very healthy, but never spread an inch since the day they were planted. It is an upright-growing beauty that always required close planting.

One bed of *Tropæolum elegans* edged with nine inches of *Mangles' Variegated* Geranium on the south side of the Rose Mount, at the top of the walk, is a perfect model that, possibly, could not now be matched in Europe; but you must go and see it, and also the one with the *Flower of the Day*, and the purple Orach aforesaid, which you will find on the north side of the Mount.

On the south side is also a bed of *Lady Downe's*, a dwarf Scarlet Geranium of the *Frogmore* race, which you will not often see. It is next to *Attraction*, a bed of which you will see to the left as you go up the centre terrace to the great transept, just opposite the second Araucaria to the right. But on the south side of the Rose Mount look for a bed of *Lobelia speciosa*, mixed half and half with *Dandy*. That, also, is perfection in contrast. Look, also, there for a bed of *Flower of the Day*, half and half with Variegated Alyssum, and say how you like it. Most people do like it, but to my eye it is absolutely the worst combination of tints I ever set my eyes on. They are two opposing tints of white, supposing to combine to make a white whiter. To me the *Flower of the Day* looks a dirty, dingy yellow by the side of Alyssum; and the Alyssum a hard, wiry grey by the side of this Geranium—just say how it tells on your eye.

You will find *Boule de Niege* in the centre of a bed near at hand—white as possible. It is a second planting to make good a failure, and teaches that, if old plants of *Boule de Niege* were long cramped in pots, and planted out in poor soil with their balls entire, it would make a good white Geranium-bed.

The *Tropæolum elegans* and *Calceolaria integrifolia* have done splendidly in the broad bands round above the Roses; and the Geraniums there are very fair, but the purple Verbenas there suffered severely. The six beds in the six sunk panels on the top of the Rose Mount are the best and fullest in the whole garden; also, the best designed about the planting of them, three good colours in each, and each well contrasted.

Now, I shall tell you a trick on travellers. All flower-beds, whether they be large or small, curved or straight on the edges, look best and most telling if they are made entirely of one kind of plant, with an edging in contrast, provided they or any of them form part of a whole, or composition of beds, as on a terrace pattern, not otherwise; no, not by any means. But when a bed stands on its own merits, and is apart from all other beds, only, perhaps, a match to it opposite, it is the height of poverty of conception of the beautiful to have it all in one colour, however rich, or soever well contrasted by its own edging, and three are the smallest number of colours that will make a perfect contrast in flower-gardening, and the edging must be considerably wider to allow it to be numbered as one of the three colours; and the six sunk panel-beds under review are the nearest to what I mean of all that I have mentioned this season. Therefore, whenever you hear two or more persons arguing about the best kind of bed, just try and make out where their beds would be, and then you can see at once who is right and who is wrong, and, perhaps they are both right, or both not right.

The most telling of the sunk panel-beds are the pair planted with *Cottage Maid* Geranium, about four feet in width, and as much of *Calceolaria integrifolia*, and a broad edging of Variegated Alyssum in full bloom, over a foot across, and not apparently trimmed; the three up to perfection in growth, leaf, looks, and bloom. The reason seems to be, that such a depth of white flowers in front, resting on a white ground, the variegated leaves throw so much light on the yellow, as to cause the yellow not to weaken the scarlet, which it does nine times out of ten; although we are so much accustomed to see the two in contrast, as to vitiate our estimates of scarlet and yellow together.

Another most beautiful pair of these beds are filled in the centre with four-feet wide of *King Rufus* or *Ignescens superba*, four feet of *Tropæolum elegans* all round it, and ten inches or a foot of *Mangles' Variegated* Geranium all round the whole, and *Mangles'* done to a T, as they do the Variegated Mint at Kew. The partial failure of *Purple King* Verbena detracts from the next and last pair, which have centres in *Cerise Unique* middlemosts of the said purple, and broad, flat bands of Cerastium in front. The four beds for the ends of the four guy ropes to the flag-staff on the bare surface of the centre of the Mount, where you might think nothing could exist in such a situation as this, are fully as up to the mark as those that are screened in the sunk spaces; but you must see, when you are there, that the climbers have now so clothed the pillars, or double pillars, and double framework for climbers, all round the top, as to confine the force of the wind to the walk-entrances; and every year this will go on more and more till every inch of the arches and trellis work is clothed in climbers, as will soon be the case. The four pillars to each of the arabesque

arches are now covered to above the springing of the arch within, and so all round. All the arches being to be fringed with Ivy on the outer and inner edges; then next to that fringe, or edging as we would say to a flower-bed, four or five feet wide of trellised white Perpetual Roses, which have attained the same height as the Ivy, or over twenty feet high, and the spaces between one arch and another will be covered with miscellaneous climbers. There is one particular kind of Ivy, called *Hartwellii*, on the north side, which I never saw in use before; but it seems a very good one with thicker and more glossy leaves than the Irish Ivy. And finally, before covering lower down, there are two twenty-feet-high Perpetual Roses—a match pair in full bloom; and not one Rose-grower out of five thousand in England had ever seen that kind of Perpetual climbing Rose in bloom; and the best thing they, the Rose-men of rosy England, could do would be to muster for one day, and do as the Foresters do and did. Surely there are 60,000 men and women in England who grow Roses, and would not grudge a run to Sydenham to see a new Rose—a Perpetual climbing one, too—which they never saw before. I should bite off my nails to the quick if I had heard of such a thing, and not be able to see it the first season. But the Prince of Wales will be able to tell the people about the Court what like it is when he comes home; for surely the Americans, among other sights, will let him see their own *Queen of the Prairies*, for that is the novelty I am upon. Did ever you see it in bloom? Or do you know anybody who did? Well, it is a most beautiful Rose for a climber, coming in great clusters of Moss-Rose-looking blossoms as double as any Rose ever was, and when first opening looking just like the shades in the opening of a *La Reine* Rose; but go and see it, as it will last yet a month, or may be three of them; for nobody here knows if it will or will not bloom till Christmas. But unless I come to a full stop, I shall myself blossom like a Rose, pudibundus fashion, or for very shame for the length of my tale; and I am not on to the middle of it yet, as I intended to give it such a peroration about Sir Joseph Paxton's garden, and his new Houses for the Million, and his luscious fruit, as would make your teeth water again.

But I must stop short, and tell how Mr. Gordon does the Japan Lilies, and how well they look after being done so. Last fall he forked up all the big clusters of bulbs, shook the mould from them, divided them into moderate parcels, planted them the same day in some of the most exposed shrubberies in England, where they stood last winter safe as "turncap" Lilies, and where they are now in branched stalks and in flower-buds as thick as for a flower show; and just under them, as you go up from the great central basin to the main terrace, is a row of dwarf plants of *Crystal Palace Scarlet* Geranium and *Flower of the Day*, time about, the whole way up, and looking quite a novelty, with lots and lots of Pink and Clove, and Picotee, Carnations; and I told them that Mrs. Capt. Whitty, who does the Waltonian so cleverly in Dublin, had written to me to say that all Clove Carnation cuttings, put in September under a hand-glass on a warm border, root with her as freely as her Verbenas in the Waltonian in the spring, and she never disturbs them more than tilting the glass till the end of February.

D. Beaton.

PURPLE LABURNUM.

I remember reading in one of your numbers, about a year ago, a dissertation on the origin of the purple Laburnum. Now, I am inclined to think that the purple state may only be a certain condition, perhaps a diseased condition (transmissible by grafting, &c.), of the common Laburnum, for this reason—I saw this year two of those trees twelve or fourteen feet high, both full of bloom; one of which had, with the exception of a bunch or so, gone back entirely to the yellow colour; and the other had about an equal number of flowers of each colour, the mixture being frequently in the same bunch—and the yellow bunches and flowers were all longer than the purple ones, the trees at the same time being in most vigorous growth. They grow in different places, twenty miles apart; the soil, however, being very much the same—yellowish stiff loam resting on limestone, about two miles from the sea. The change began two years ago. Is it of common occurrence?—D. C. M.

[Quite a common occurrence; and next May all the purple Laburnums will be three parts yellow, and some almost all yellow, except the tufts of Cytisus. Just watch this prediction; it will not be accidental more than the birth of *Tom Thumb*.]

Will you state the names of some Heaths which will succeed in front of my Rhododendron-borders?

[There are a hundred kinds of Heaths that will do out in the open peat-borders in summer better than ever they did in pots in nine places out of ten; but the bother is, they soon make such balls that no pots can hold, and if you reduce their roots away they go as by accident. Therefore, all Heaths that bloom naturally in summer and autumn will do to turn out; but the *ventricosas* and those like them are the best to try crossing with, as being themselves the farthest removed by crossing from the wild type. The white one like *Bowiana*, called *intermedia*, is the only one before the *ventricosus*—that is, most likely to prove the idea of crossing African with European Heaths. That one was not in cultivation when we were young. And is it not equally strange that no African Gladiolus has yet crossed with a European one? Make that also a string for your bow.]

FLOWERS FOR CHRISTMAS.

"It has struck me that this is a proper time to begin to think what we should be doing to have a show of flowers at Christmas. We so often drive the inquiry too late, and are as often disappointed. Will you kindly help us by giving a list of plants that we may have in bloom at that festive season, and what we require to be doing now and hereafter to obtain this? I would suggest that some of your able contributors should point out what we may retard, and what we may push forwards, so that autumn and spring may shake hands together on Christmas day in a welcome group on our dinner-tables or sideboards.—W. G."

To meet more inquiries besides that of our correspondent, I will enlarge the time, so as to include plants that may be had in bloom in the last and the first months of the year.

Our correspondent has given no outline of his conveniences, but I must suppose that he has a plant-stove, a greenhouse, a forcing-pit or house, and a cold pit or frame. The somewhat random lists given will suit any one, however, according to the conveniences at his disposal and the means of heating at command, if he should merely have a greenhouse and pit, or a pit and a window, or windows alone.

STOVE PLANTS.

Ardisia crenulata; Æchmea fulgens, Martenzii; Begonia fuchsioides, alba, coccinea, manicata; and fine-foliaged ones for the beauty of the leaves, as *Rex, grandis, Marshallii, argentea, maculata*, &c.; *Bletia verecunda, Shepherdii;* Cannas, of sorts, as *coccinea, iridiflora; Centradenia rosea; Cymbidium sinense; Cypripedium insigne;* Crotons, Dracænas, Marantas, and Caladiums, for fine variegated and shaded foliage, *Dichorisandra thyrsiflora; Epiphyllum truncatum, violaceum; Eranthemum pulchellum, verrucosum; Euphorbia jacquiniæflora;* Franciscea, of sorts; Hippeastrum, of varieties; *Gesnera zebrina*, &c.; *Justicia flavicoma, speciosa*, &c.; *Passiflora princeps; Poinsettia pulcherrima; Zygopetalum crinitum*, &c.

There and in a warm greenhouse forced bulbs, as Hyacinths, Narcissuses, Tulips, Jonquils, Musk, Lily of the Valley, and such shrubs as dwarf Almond, *Cerasus pygmæa, Deutzia gracilis, Kalmia glauca*, Lilacs of kinds, Rhododendrons, and Roses chiefly China and Tea.

GREENHOUSE PLANTS IN BLOOM.

Andersonia sprengelioides; Acacia armata, juniperina, &c.; bulbs forced; Camellias, Cinerarias, from early sowing; *Correa speciosa*, and hybrids; Chrysanthemums retarded; Cyclamens; Cytisuses a little forwarded; *Daphne indica* and *rubra*; *Erica Linnæoides, Wilmoreana, hyemalis, gracilis; Fuchsia serratifolia;* Geraniums, Scarlet, prevented blooming in summer; *Habrothamnus elegans; Jasminum nudiflorum; Linum monogynum; Lobelia erinus* or *speciosa*, for hanging in front of

stage; Mignonette sown at the end of July; *Primula sinensis; Salvia fulgens* and *splendens;* Violets, Neapolitan, Tree and Russian.

In windows of sitting-rooms may be had Hyacinths, Narcissuses, Jonquils, Tulips, Musk, and Lily of the Valley, forced.

Leucojum vernum; Scillas, Crocuses, Snowdrops, &c., slightly accelerated after the flower-buds were visible; Scarlet Geraniums, and *Unique* Geraniums; Violets, of kinds; Mignonette, Chinese Primroses, Cyclamens, and common Polyanthuses and Primroses, and single Wallflowers that had been kept under protection.

Shrubs should chiefly be confined to Camellias, Daphnes, Coronillas, and China Roses.

Other windows might have the stock of sweet Geraniums. Florist and fancy Pelargoniums, Fuchsias, Primroses coming on in succession, &c. Next, what shall I say to our correspondent's inquiry as to what requires to be done now and hereafter to obtain all this—what retard and what accelerate? To do that effectually would require half a volume, and then would at best be little better than repeating an oft-told tale. In a short article I will endeavour to glance at a few salient points, which may be considered the most timely.

The first thing to be done, then, if you want a fine display at Christmas and the new year, is to get in a supply of good bulbs as early as you can get them. After you have stipulated as to price, it will be sound policy to leave the selection of the bulbs to the respectable firm that you may deal with, as their practised eye will single out what would be likely to bloom earliest. Even then, however, if you wished a score of Hyacinths in bloom on Christmas day, and as many pots of early Tulips, you would require to have at least three score pots of each to choose from. It is often recommended to pot these bulbs at different times from the end of August to October, in order to have a succession of bloom; but when I used to grow bulbs, I found I had plenty of succession by potting all as soon as I could get them, and then removing the forwardest in succession to the forcing-pit. Even if you plant at this period a score of Hyacinths of the same kind, and the bulbs as much alike as possible, there will be a considerable difference in their rooting and throwing up bloom. This, on the premises adverted to above, is often an advantage if you do not decline having a fair number of bulbs. A four-inch pot will do for a nice Hyacinth bulb, and a five-inch for a strong Narcissus, and a four or five-inch pot for three of the Van Thol and other early Tulips. Sometimes I have found these Tulip bulbs come irregularly, just like the Hyacinths; and, therefore, I used to start the Tulips in a bed or box before potting them, and then selected them as equal as possible, so that, whatever the number of bulbs in a pot, they should all bloom and fade about the same time. These matters settled, use rich sandy loam, and leave a little of the bulb above the soil. Then select a dry, elevated place out of doors, and there place your pots, and cover with six inches of ashes, old tan, or anything of that kind, so that the bulbs will slowly imbibe moisture, and the roots be protruded. Heavy rains should be avoided by covering the bed. A dampish, dark cellar is a good substitute; and the bottom of a cupboard is also good, if the floor is kept dampish, and a sprinkling of damp moss is kept over the bulbs. No watering will be needed to the soil, but the damp ground and the dampish covering will give all the moisture that the bulbs need.

Managed by either of these modes, by November many of the pots will be crammed with roots, and the flower-stem be showing from the bulb. Select the forwardest of these to accelerate by forcing. It is no use trying forcing before this rooting takes place. The front of a hotbed, with a bottom heat rising from 65° to 75°, and a top heat commencing with 50°, and rising to 65°, is the best place for them. If placed anywhere in the bed, the glass must be shaded from sunshine until the young leaves have become quite green. It is best to plunge the pot a little at first, and then to the rim; but prevent the roots getting out at the bottom. Under such circumstances little water will be needed until the flower-stem is rising well, though, of course, the soil should not be dry; but if the plunging medium is moist, it is best as yet not to saturate the soil. Sometimes with all this care the flower-stem remains stumpy and does not rise well. A pot of the same size put over it, leaving the hole in the bottom open, will often induce it to rise. We prefer, however, small brown-paper funnels, with just the smallest hole in the top. This confines a moist atmosphere and a high temperature about the stem, and causes it to rise and give room for the florets to expand freely. If the stem lengthens too much, give more air and lift the pot out of the plunging medium. When the florets are opening, raise the pot out of the bed, and in a few days remove to the greenhouse or window. Some of our friends, with nothing but their cupboards and their kitchen fire, manage to have Hyacinths early in January, and distribute some to their friends; but they attend to them with care and nicety, and make a little sawdust and warm water the substitute for the hotbed. So much for what is timely, as preparatory. Now for a brief running comment.

Ardisia crenulata is the house winter Holly plant. It is almost always in bloom; but that is nothing, it is never hardly without its layers of red berries. Grown as a small standard, it gives a lively appearance to a house, and will stand some time in the sitting-parlour window. Treatment easy and simple.

Begonia fuchsioides.—Keep growing vigorously until the end of September, then give more air and full exposure to all the light possible, and less water; and ere long it and many of its compeers so treated will be a mass of bloom in winter.

The *Epiphyllums.*—Water freely until the end of September, if the weather is sunny, then give all the sun possible, and curtail watering, and even when in bloom the soil should not be saturated. A very moist atmosphere causes the blooms to rot. A warm greenhouse suits it best when in bloom.

The *Eranthemum*, to produce its rich blue little flowers in abundance, should be grown freely in peat and loam and plenty of heat until September; then gradually give more air and less moisture, and it will bloom freely for several months in winter.

Æchmea, Bilbergia, and *Tillandsia.*—Keep growing in a moist, high temperature until towards the end of September. Keep drier and more airy, and give less water afterwards. In November turn the plants topsy turvy several times, to get rid of any drip that might lodge in the centre like a Pine Apple. The comparative dryness will cause the flower-stem to start and grow strong.

Cannas frequently are very beautiful at this season. After fine summers they do best when planted out in a warm border, to be potted and housed in October. Those kept in the house should have little water in November before the flower-stems appear.

Euphorbia jacquiniæflora.—Encourage by heat and moisture until the end of August. Only in such seasons as this give no more water than the plant can manage, or it will be apt to canker. In September give more air and a drier atmosphere, and increase the dryness in October and November, so that the plant does not flag; and by Christmas and the New Year the plant will be lively in a dryish atmosphere and a temperature averaging 60°.

Hippeastrum (amaryllids).—Kept dry and in a temperature of from 40° to 50°, may be placed in the stove or hotbed as soon as the flower-bud shows after top dressing and watering.

Gesnera zebrina will be fine at Christmas, if the tubers were started in May and June, and kept growing on slowly in a moist atmosphere. As soon as the flower-spike begins to expand the atmosphere must be drier, and average from 55° to 60°.

Justicia calytricha or *flavicoma* is a splendid yellow flower in winter. Prune down when done flowering in spring; when started fresh pot; keep anywhere under glass in summer; increase the air in September, and in an average temperature of 50° it will bloom all the winter.

Poinsettia, from its bracts, has a fine appearance in the early months of winter Let the plants get dry in spring; prune back within a bud or two of the old wood in March or April; repot when young shoots show; grow under glass, a close, cold pit will do after June; encourage with heat and moisture; give more air, and harden with all sunlight possible in August and September; house in October, and be moderate in watering before the flowers and bracts appear in December and January.

These are a few of the most prominent stove plants. In the greenhouse, besides forced bulbs, the

Andersonia delighting in sandy peat is almost constantly in bloom.

Acacias of different sorts will be in flower if the growth were made at all early. Keep the plants drier in November until the flower-buds show.

Chrysanthemums, especially the Pompones, may be retarded if placed on the north side of a wall early in October, and protected from frost in November.

Correas.—Speciosa and others will come in naturally if grown in a cold pit in summer, plenty of air given in August and September, and housed in the beginning of October, and water lessened according to the season.

Coronilla glauca will be a blaze of yellow, if it were pruned and set a-growing in the beginning of summer. Whenever the flower-buds show it drinks like a fish. Keep it a little dryish in November.

Cytisus.—Attleana, racemosus, and others require starting into growth early, keeping dryish in October, and giving a heat averaging 50° in November, to have them in bloom generally at Christmas or the new year. They will come in quite naturally by the end of January in a house averaging 45° at night.

Ericas.—The kinds mentioned will come in without any extra care, except keeping them airy, but not in a draught. Those who can air a living-room and not make draughts will know what is meant. Many plants that delight in fresh and even moving air will not survive cold draughts.

Lobelias.—I have mentioned having often felt and seen their good effects when grown in small pots, and allowed to hang from the shelf or stage. The *erinus*, or the old *speciosa*, and the old *begoniæfolia*, which I wish to get hold of again, having lost it, are useful for this purpose, and also for suspending from baskets.

Carnations, Perpetual, do best when planted out in May, all flowers removed, taken up carefully at the end of September and potted, kept shaded for a fortnight in hot sun, and then removed to the greenhouse, where they will bloom all the winter if the night temperature averages 45°.

Linum monogynum—pruned back in spring, repotted when the young shoots had started, grown in a cold pit in summer, exposed to sun and air in August and September, and housed in October and watered sparingly—will, in December and January, be covered with its yellow flowers.

Jasminum nudiflorum.—Nice small plants of these may be obtained from cuttings or layers in summer, and without any care. If the young shoots had been exposed to sun and air they would be covered with yellow flowers all winter. It is a pity that they are not sweet-scented as well as bright-coloured.

Primula sinensis, to be in full bloom thus early, should have been sown in a little heat by April, pricked off in heat, and potted and repotted, and kept at the back of a wall or fence in the summer months. A four-inch pot will grow a nice plant. It is best not to have large pots for this early flowering. House by October, and give an airy place.

Violets do best when divided or struck from cuttings in spring, planted out in a bed in summer, well watered and syringed to keep red spider at a distance, and repotted in rich loam at the beginning of September. These will generally bloom nicely in the winter months.

Shrubs are most successfully forced when the plants, from being early potted, are full of roots, and the pots are subjected to a mild increase of temperature by bottom heat, whilst the top heat is kept comparatively cool. When we did much in this way, we used to make a slight rough hotbed out of doors, and in that we used to plunge the pots at the end of October, leaving the tops all exposed; and then towards the middle and end of November removed them to the forcing-house or pit. Provided the bottom heat was moderate, from 70° to 75°, all plants of such kinds do better when the pots are partly plunged, than when they are exposed on a platform or stage.

China Roses will come into bloom in a warm conservatory without any forcing.

Musk is very easily excited in any place where there is heat; and roots may be taken up out of the garden and crammed into the pot at once.

In lifting *Lily of the Valley*, adopt our friend Mr. Fraser's plan. No one can be more successful. He fingers each bud, and by its firmness knows whether it has flowers or not. He packs, perhaps, a dozen roots of these in a six-inch pot, and the result is everything that could be wished. A little bottom heat is useful for such early work. Get some potted by the beginning of November, or as soon as the leaves begin to decay.

I have seen so much good window gardening of late years, that I must, ere long, call upon some of our friends to pay back any advantage they have received from us, by giving us some lessons from their experience in return. To the uninitiated I would say, that the chief things to be thought of are freedom from frost, water just according to the needs of the plants—once a-week or once a-month, just as they require it; extreme cleanliness by washing the leaves and keeping all dust and filth from resting on them and the stem, and by damping the foliage and other means neutralising the warm, heated, and dried air of the sitting-room. R. Fish.

CLUB-ROOT AND ITS CURE.

Can your inform me of a remedy for clubbing at the roots in Broccoli and Cauliflower? Our ground is strong and hot with some loam. We have tried several remedies, but cannot succeed in growing any but small, dwindling things.—C. Goding.

[Clubbing is caused by the perforations made in the stems and roots by a small weevil, called by some entomologists *Ceutorhyncus sulcicollis*, and by others *Curculio pleurostigma*. In those perforations the weevil deposits her eggs; and the larvæ, or grubs, when hatched feed on the inner bark of the plant, and by their woundings cause those knobs, or galls, called ambury or club-root. Charcoal-dust, spread about half-an-inch deep upon the surface, and just mixed with it by the point of a spade, it is said, prevents the occurrence of this disease. Soot, we have reason to believe, from a slight experience, is as effectual as charcoal-dust. Judging from theoretical reasons, we might conclude that it would be more specifical; for, in addition to its being, like charcoal, finely divided carbon, it contains sulphur, to which insects also have an antipathy. A slight dressing of the surface-soil with a little of the dry hydro-sulphuret of lime from the gas-works would prevent the occurrence of the disease, by driving the weevils from the soil. It would, probably, as effectually banish the Turnip-fly or beetle, if sprinkled over the surface immediately after the seed is sown. For Cabbages, twelve bushels per acre would not, probably, be too much, spread upon the surface, and turned in with the spade or last ploughing. To effect the banishment of the Turnip-beetle, we should like a trial to be made of six or eight bushels spread over the surface immediately after the sowing and rolling are finished. Although we specify these quantities as those we calculate most correct, yet in all experiments it is best to try various proportions. Three or four bushels may be found sufficient; perhaps twelve, or even twenty, may not be too much. In Cabbages, the ambury may usually be avoided by frequent transplantings; for this enables the workman to remove the excrescences upon their first appearance, and renders the plants altogether more robust and ligneous; the plant in its tender, sappy stage of growth being most open to the insect's attacks. We believe that club-root rarely occurs upon rich soil; and believe that a plentiful supply of house sewage or other liquid manure abounding in ammonia, both to the seed-bed and plants when finally bedded out, would banish this disease; for the parent insect cannot endure the fumes of ammonia, and the vigorous growth secured to the plants speedily removes them out of danger.]

ELDERBERRY CATSUP.

On every pint of ripe Elderberries stripped from the stalks pour a pint of boiling vinegar, and let it stand in a cool oven all night. Strain without pressing, and boil the liquor five minutes with half a tea-spoonful of salt. To every quart put half a pound of anchovies, half an ounce of mace, half an ounce of whole pepper, half an ounce of ginger, twelve cloves, and four eschallots. Bottle when cold with the spices.—F. A. D.

[We insert the above recipe on the special recommendation of a well-palated correspondent, who assures us that it is a most praiseworthy composition, and employable for the same purposes as Mushroom Catsup.—Eds.]

WHAT TO LOOK FOR ON THE SEASHORE.

(*Continued from page* 288.)

CHAP. V.—ECHINODERMATA.

The class Echinodermata completes the order called Radiata, and the members of it have received their name from two Greek words which signify "Sea Hedgehog" and "Skin;" the spines peculiar to these creatures having suggested a partial resemblance to the bristles of a hedgehog. It seems, indeed, somewhat irreconcilable with a proper classification to include these calcareous, hard-skinned animals among the soft, gelatinous creatures forming the other members of the family of the Radiata which we have previously had under notice. Still, as all our zoologists have decided on referring them to that order, we are not at liberty to do otherwise than follow their example.

Echinodermata may then be generally described as a class of the Radiata, comprising aquatic invertebrate animals, which have the surface of their skin usually covered with calcareous spines.

The common Sea Urchin and the Starfish, which may be seen on every coast, being the most familiar examples of the class.

The Echinodermata are very much more highly organised than the Polypes, and are nearly all of them free animals, creeping about at the bottom of the sea, by means of a peculiar arrangement of parts which will be hereafter explained. The larger numbers of them are protected by a leathery skin, which is additionally strengthened by calcareous plates or spines, and are in that manner distinguished from the Medusæ, which, although equally free animals, are of a delicate and membranous texture. Most of the species are externally radiated, the lower groups resembling Polypes. The Feather Star, a very familiar specimen, is in its earlier stage of existence fixed to a stem; but, on reaching maturity, becomes fixed and star-like.

It is worthy of notice that a certain definite number seems to regulate the arrangement of parts in all the Radiata. In the Echinoderms that number appears to be five; in the words of Professor Forbes:—"In the Echinodermata the reigning number is five. The name of 'Five-fingers,' commonly given by mariners to the Starfishes, is founded on a popular recognition of the number regnant. Among the lower and the typical orders we find this number regulating the number of parts. Every plate of the Sea Urchin is built up of pentagonal particles. The skeletons of the digestive, the aquiferous, and the tegumentary systems, equally present the quinary arrangement, and even the cartilaginous framework of the disc of every sucker is regulated by this mystic number. When the parts of Echinodermata deviate from it, it is always either in consequence of the abortion of certain organs, or it is by a *variation by representation*—that is to say, by the assumption of the regnant number of another class. Thus do monstrous Starfishes and Urchins often appear quadrate, and have their parts fourfold, assuming the regnant number of the Actinodermata."

The Echinoderms differ materially in shape, usually, however, presenting a radiate arrangement of parts, and often perfectly resembling a star in form, as in the case of the common Starfish. In the globular Sea Eggs, (*Cidaridæ*), also the same asteroid formation may be observed; in others it seems to be almost undistinguishable, as in the Sea Cucumbers (*Holothuridæ*), although the tentacular crown which surrounds the anterior extremity of these animals is also of a radiate structure. We merely mention these creatures cursorily at present; but full descriptions of them will be given in their due course and order.

There is one very remarkable peculiarity displayed by some species of the Echinoderms—namely, a power of instantaneous dismemberment, which power enables them to indulge in sudden suicide, to which they have a singular tendency. This is noticed in the species called "The Brittle Star." A very amusing illustration of this strange propensity is given by Professor Forbes in his "History of British Starfishes," which we cannot do better than extract.

"The first time I ever took one of these creatures, I succeeded in getting it into the boat entire; and never having seen one before, and being quite unconscious of its suicidal powers, I spread it out on a rowing-bench, the better to admire its form and colours. On attempting to remove it for preservation, to my horror and disappointment I found only an assemblage of rejected members. My conservative endeavours were all neutralised by its destructive exertions, and it is now badly represented in my cabinet by an armless disc, and a discless arm. Next time I went to dredge in the same spot, determined not to be cheated out of a specimen in such a way a second time, I brought with me a bucket of cold fresh water, to which article Starfishes have a great antipathy. As I expected, a Luidia (*Lingthorne*) came up in the dredge, a most gorgeous specimen, as it does not generally break up before it is raised above the surface of the sea. Cautiously and anxiously I sunk my bucket to a level with the dredge's mouth, and proceeded in the most gentle manner to introduce Luidia to the purer element Whether the cold air was too much for him, or the sight of the bucket too terrific, I know not; but in a moment he proceeded to dissolve his corporation, and at every mesh of the dredge his fragments were seen escaping. In despair I grasped at the largest, and brought up the extremity of an arm, with its terminating eye, the spinous eyelid of which opened and closed with something exceedingly like a wink of derision."

The existence of a nervous system in Echinoderms has been admitted, and consists of a series of ganglia or nerve-knots surrounding the gullet, united by a nervous ring, and giving off a set of nerves to every ray of the body. The sexes are invariably separate, in contradistinction to the rule which prevails in the lower Radiata.

Some of these animals are eatable. The Sea Urchin, for instance, often forms an article of food for the poorer inhabitants of France, Spain, and Italy; and the Trepang of commerce, which is a species of Holuthuria (Sea Cucumber or Sea Slug) dried forms an article of luxury at the table of that highly-refined people the Chinese.—W.

(*To be continued.*)

THE GREAT AMERICAN ALOE.

The flowering of this plant (*Agave americana*) in England is a remarkable event;—"like angels' visits, few and far between." At Leeds, in Yorkshire, there is a large garden originally laid out as a Botanical Garden, but from some cause or other it has ceased to bear that character, and now belongs to a private gentleman. Some of the old greenhouses are yet standing, and in one of them some years ago a large specimen of this Aloe was planted out in a pit, in which it now grows, and is flowering. It is, perhaps, the largest plant of the kind in Europe, as the following dimensions will show. It has ninety-six leaves, the largest is 7 feet long, 15 inches broad, and 4½ inches thick. Many of the others are very nearly of the same gigantic size. The main body of the plant, just below where the flower-stem springs up, is 6 feet in circumference, and the entire plant covers a space of 60 feet in circumference. The flower-stem, 8 feet from the plant, is 12 inches round, and 20 feet high. It is expected before the flowers are fully expanded that it will reach the altitude of 30 feet. It has twenty-three panicles of flower-buds, and it is supposed there will be 3000 blooms on this immense plant.

In order that the public may have an opportunity of seeing this noble plant, the owner has let the gardens for its season of blooming to Mr. T. Dawkins Appleby, the son of our esteemed contributor.

In the garden there are many specimens of rare trees and shrubs now in good health, and of a goodly size.

Altogether a visit to see the Aloe and to have a walk in those gardens is a treat to all lovers of gardening scenes. The Aloe is expected to be in its best state about the first week in September, and will last in bloom through the whole of that month.

GREENHOUSE ORCHIDS.

(*Continued from page* 318.)

Insects.—In a cool moderate temperature Orchids are not generally infested with insects. Sometimes, however, they appear, and should be instantly destroyed in order to prevent their increase. The insects that prevail most on them are the black thrips, the white scale, the cockroach, the slug, and red spider—all bad enough when they prevail to any extent.

The thrips not only feeds upon the leaves, but exudes a glutinous liquor, which stops up the pores of the leaves; which, together with the swelling out of the sap, causes the leaves to become blotched, gangrenous, and finally to perish. Frequent smokings with tobacco will destroy the living insects, also a dredging with Scotch snuff is a good agent for destroying them; but keeping the plants healthy and frequent spongings will generally banish this pest.

White Scale.—This insect is often found in large numbers on imported Orchids. The far-famed Gishurst Compound is the best destroying agent I have seen yet applied. I have, however, cleared plants of the scale by a mixture of sulphur, soft soap, and tobacco water.

Cockroaches arrive in this country amongst imported Orchids, both in the egg state and alive. There are many remedies advertised. Chase's Beetle Poison is as good as any. I have thinned the numbers of them by placing a glass vessel half full of sweetened beer in their tracks, and by searching for them in dark nights with a bull's-eye lantern, and with a pronged fork impaling them, or killing them with a flat piece of wood. I have been dreadfully annoyed in some mornings to find a nice young root eaten away, or a promising flower-shoot half gnawed through, by these insects; and so will every grower of Orchids, unless he wages war with them continually. So also with the white slug, or any other species of that ilk. In moist houses they can travel

about easily; but with a little watchful care they may be traced to their hiding-places and destroyed.

The *Red Spider* is a tiny enemy, feeding upon the young leaves and turning them yellow. It may be kept under by washing the flues or hot-water pipes with sulphur water. Frequent sponging is also a preventive, and also a free use of the syringe on affected plants.

These are all the insects that I need mention as being destructive to orchideous plants, though sometimes the green fly will attack the young leaves and flowering-shoots. They are, however, easily got rid of by Tobacco smoke; only be careful in burning it that it never burst out into a flame.

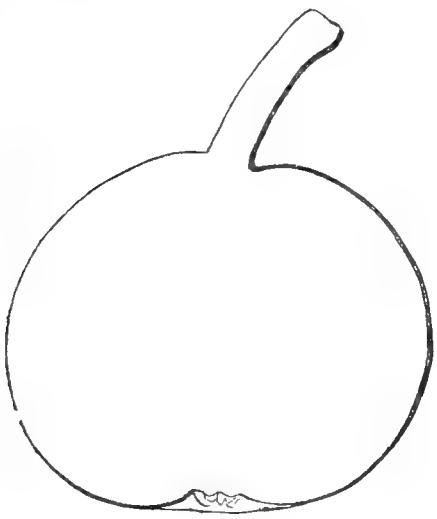
Propagation.—My essay on the points of culture would scarcely be complete without a few words on how to propagate them. The epiphytal species may be increased by passing a knife through the rhizoma, or rootstock. At the base of each leaf or pseudo-bulb there is generally an incipient bud; this bud, when the rhizoma is cut in two, will swell, and finally produce a shoot. The cut may be left where it is till the first pseudo-bulb is perfected; then, at the time of potting, the cut part with its new young shoot may be separated from the parent plant and potted in the usual way. Terrestrial Orchids are of two kinds—namely, such as are herbaceous, as, for instance, the Cypripediums, and such as are bulbous like the Bletia. The first may be divided into moderate-sized sections, and thus make good plants at once. When potted, the second may be increased by detaching at potting time one or more small tubers, potting these into small pots for a season, and increasing the size of the pots year by year as they advance in size. T. Appleby.

FRUITS and FRUIT TREES of GREAT BRITAIN.

(*Continued from page* 353, *Vol. XXIII.*)

No. XXVIII.—Doyenné d'Ete Pear.

Synonymes.—*Doyenné de Juillet; Duchesse de Berri d'Ete; Jolivet; Roi Jolimont.*



This is one of the seedlings of *Van Mons*, which has for a considerable number of years been in cultivation, but only to a limited extent. It is one of the best of all the very early varieties, and comes into use about the middle of July when the seasons are favourable. This year it was not ripe till the first week in August; but even then it was considerably earlier than any other variety growing in the same collection.

The fruit is slightly fragrant, below the medium size, roundish, and Bergamot-shaped, and even in its outline.

Skin smooth and shining; on the shaded side and about the stalk, or on any part that is shaded, it is citron yellow when fully ripe; but at the time when the fruit should be gathered it is greenish yellow. On the side exposed to the sun it is covered with dull red, which gradually fades into the yellow ground.

Eye open and partially closed with small acute segments, which sometimes overlap each other and give the eye a distorted appearance.

Stalk three-quarters of an inch long, stout, and rather fleshy, particularly at the base, and inserted in a slight depression.

Flesh yellowish, half melting, very juicy, sweet, and pleasantly flavoured.

An excellent early Pear, ripe in the middle of July. It should be gathered before it becomes yellow, and when it begins to assume a yellowish-green colour, otherwise it is mealy and insipid. It never rots at the core.

The tree is an excellent bearer, quite hardy, and forms a handsome pyramid. It bears well as a standard, and would be a good variety for market purposes, both on account of its earliness, and the fine appearance of the fruit.—H.

THE SEASON.

Following up Mr. Robson's ample and interesting notes in your number of the 14th, I offer the following brief notes from this northern region.

The spring months were marked by nothing particular, save an excessive rainfall. We had less of violent winds than usual, and no late frosts. All half-hardy things were put out in the early part of May, but the weather since has been so ungenial that they have done but little good. My weather-table for June is made up of three phrases—cloudy, stormy, rain. In that month the gauge registered the unprecedented quantity of 5·465 inches. Last season, during the same month, not one drop. During July we had less boisterous weather, with but little sunshine, however, and a rainfall of 2·360. August has half passed in the same way, the fall to the time I write (17th) being 1·660, and a violent gale from the S.E. with rain is now raging like a November blast.

Large fruits are a plentiful crop in the neighbourhood, but the quality will doubtless prove indifferent and late.

Small fruits.—Gooseberries and Currants most abundant, but only just gathered. Raspberries scarce. Strawberries a plentiful crop here; but on heavier soils not so. The flavour in all cases insipid. *Elton Pine* particularly heavy crop, and in use simultaneously with *Keens' Seedling* and *Black Prince.*

In the vegetable department *Potatoes* are a capital crop, and though rumours are rife as to the appearance of disease further north, there is no appearance of it here; and the steadily downward tendency of prices inclines me to think such reports are propagated by the speculators. Early sorts are a huge crop on our light soils; I never saw such a yield of *Kidneys*, having gathered eighteen to twenty-four large tubers at a stem. I find the *Walnut-leaved Kidney* more prolific and better matured than the common *Ashleaf;* but of the latter it should be remembered much depends on the strain. *Lemon Kidneys* did well this season, though worthless last. I have a large patch of *Dalmahoys*, a famous cropper, and as yet not the slightest trace of disease. They will lift in about ten days.

Peas have been luxuriant, but the pods badly filled. *Veitch's Perfection* and *Strathmore Hero*, put side by side, have grown like a grove of Poplars, and both promise to bear well, and seem uncommonly like each other. [No.—Eds.]

Carrots a superb crop here, but indifferent elsewhere.

Cabbage and all the Brassica tribe have suffered much from the aphis, many of the plants being literally eaten alive, and the hearts of many more completely destroyed. Is there no remedy for this pest? would dipping the young plants in tobacco water, or Gishurst, or a soot-and-lime puddle be of any probable benefit?

Turnips a famous crop in every direction. I must ask those who wish to see a perfect garden Turnip, to try some *Finland Yellow* next season (it cannot be got for love or money now). It has a very dwarf top, a beautiful glossy, clean skin, and a top without any thick shoulder, but going away right from the bulb—*the* Turnip for small gardens.

In the flower garden, Roses have been the greatest or rather the only success, except annuals, which with me have done well. *Linum grandiflorum* I found came best sown in the open ground, and from a seed a year old. Crimson Candytuft makes a nice centre for a bed with a variegated edging. Ditto *Tom Thumb* Nasturtium. And *Saponaria calabrica* is indispensable to every flower garden. I find this annual perpetuates itself from seed at the foot of a wall, and comes into flower in April. The only decent things among bedding plants are old pot Verbenas and Geraniums, &c., turned out to clover in the borders. I vote for autumn-struck cuttings as our only chance of making a quick display in this ticklish climate.—J. M., *Heathbank, Forfarshire.*

HORTICULTURAL SOCIETY.

FLORAL COMMITTEE.

A Meeting of the Floral Committee was held on Thursday last at the Rooms, 8, St. Martin's Place, W.C. Rev. Joshua Dix in the chair.

A Seedling Achimenes, of a fine, dwarf, bushy habit, and an abundant bloomer, was received from Mr. Deane, Nurseryman, Bradford, Yorkshire, the flowers of which were very flat and smooth on the edges; but the colour and general appearance of the plant were not considered sufficiently distinct from many others in cultivation to commend this variety to special notice.

Mr. Thompson, of Ipswich, sent flowers of *Nemophila atomaria oculata*, a very pretty new annual. In the centre of the flower is a black eye, external to which is a zone of white, and on the outside of the white a zone of pale blue. The flowers were considerably withered, and, therefore, a correct judgment could not be formed of their real beauty.

Mr. Keynes, of Salisbury, sent a tray of Seedling Carnations and Picotees: Carnation *Vivid*, a scarlet flake, and *Garibaldi*, a rose flake. Picotee *Rosabella*, light rose edged; *Mount Etna*, heavy-edged red; *Sylvia*, edged light purple. The same gentleman also sent three seedling Dahlias: *Andrew Dodds*, a fine, noble flower, with great depth of petal, and full centre. Colour velvety maroon, the petals in the centre tipped with mauve, which gives the flower a fine iridescent lustre. This was unanimously awarded a First-class Certificate. *Purpurea* is a bright rosy purple, and *Minnie* a blush white.

Mr. Dodds, of Salisbury, sent flowers of four seedling Dahlias: *Mrs. Dodds*, a lovely yellow, rich in colour, great depth of flower, and beautifully cupped petals; received a First-class Certificate. *Mrs. Wm. Fawcett*, blush white, tipped with rosy purple. *Mrs. Balfour*, primrose, tipped with purple, finely cupped petals, and great depth of flower. *Highland Mary*, yellow spotted, and striped with crimson; a good flower, but dirty looking.

Mr. Rawlings, of Bethnal Green, sent a seedling Dahlia, *Miss Jones*, which had not quite acquired its true character. The same gentleman also sent a variegated-leaved variety, but the marking was not considered sufficiently defined.

Mr. Kinghorn, of Richmond, sent two seedling Lobelias, one of which, named *Mars*, is in the way of *St. Clair*. *Purple Standard* is a fine thing of a lovely rosy-purple colour, and with broader petals than any of the other varieties of the same colour. This was considered a great acquisition, and received a First-class Certificate.

Messrs. E. G. Henderson & Son, of Wellington Road, sent branches of a new plant called *Epigynium leucobotrys*, a native of the Duppla Mountains in North-eastern Bengal. It belongs to the natural order Vacciniaceæ, or Cranberry family, and is a hardy greenhouse or conservatory plant. The flowers are produced in racemes, and are succeeded by clusters of fruit like Currants, on long, fleshy pedicels, the fruit and pedicels of a delicate snowy whiteness. Each berry is the size of a White Currant, with a central black spot surrounded with five small black spots. This received a First-class Certificate.

Messrs. Carter & Co., of Holborn, sent a collection of new annuals, among which a pale variety of *Saponaria calabrica* received a Label of Commendation; the others were hardly in a condition to have their merits fully discussed.

Mr. Whiting, of the Deepdene, sent a very nice double variety of the pot Marigold (*Calendula officinalis*), which was also Commended.

NOTICE OF NEW BOOKS.

Uses of Animals.*—The work before us contains the first course of lectures delivered at the South Kensington Museum by Dr. Lankester. The second course upon kindred subjects will be published in the autumn, and most ably and popularly do they explain "the nature and objects of those animal products which are employed in the uses of daily life."

We will confine our quotations and notes to the lecture "On Waste"—a common but very erroneously employed term, except when applied to man's lavish expenditure. There is no "waste" in Nature; the vilest refuse has its part and office to fill in creation—the very excrements of animals are a portion of the food of plants—the Medlar and many other fruits, "luscious in decay," are portions of the sustenance of man and other animals. "Waste" and "Weeds" and "Dirt" are all terms relative to the situation in which they happen to be—they are no longer "Waste" and "Weeds" and "Dirt" when they are in their appropriate places. "Waste," moreover, is altogether a false term, if intended to express anything as useless. Nothing in the world is useless. Every leaf waving healthily in the sunshine pours out the life gas of animals, and when that leaf decays it becomes a source of heat to the gardener, and, like all other vegetable refuse, a manure for his plants. Every animal, from the minutest revealed by the microscope to the largest denizens of the forest and the ocean, emit gases and excretions on which plants depend for their growth and existence.

Let us turn to our own households, and see what is the value of their "Waste." The very sweepings of our rooms are a manure; the ashes of our fireplaces are mingled with clay to form bricks; the soot of our chimnies is an admirable top dressing for our cultivated soils; and the sewage of our sinks and waterclosets is the most fertilising of liquid manures.

If we turn to our workshops we shall find no "waste" there. Paper-shavings are again sent to the mill; the fragments and rags of the tailor, draper, and old-clothesman form the very best manure for our Hops; and it is curious to reflect that a cast-off coat may be decomposed into the aroma arising from a future tankard of ale on our sideboard! "When," says Dr. Lankester, "the workman is at work on the diamond, he suffers not a grain of its dust to be lost or wasted, but hoards it up for future use. So with the workman in gold and silver. We find that the particles of dust that escape in various directions are carefully collected;—and it is not less true with regard to vegetable products. We see the shavings and sawdust of the carpenter and cabinet-maker carefully collected together for other purposes and uses in the arts and manufacturing operations; and it ought to be no less so in the animal kingdom, in the use of the animal products."

Commerce, too, aids in this profitable avoidance of "waste." Forcibly was this enforced upon our attention in what has so wrongly been styled "that *waste* of waters, the Atlantic." We there fell in with a little vessel, and when hailed as to her whence-from, where-to, and purpose, the reply was, "From Miramichi to Belfast with buffalo tips!" The world was circumnavigated that the tips of horns might be converted into handles, and their shavings would be mingled with the manure-heap.

The hides of those buffaloes are imported for conversion into leather; the clippings of those hides are boiled down into glue; and their bones have been imported to form superphosphate of lime for the fertilising of our corn fields; and even the bones of men and horses from our battle-fields have been imported thus to enrich the country for whose safety they died.

Thus might we range over every region of our earth without failing in a single instance to show that there is no such thing as "waste" in existence; but we must close our note-book, yet we will not refrain from one more extract from the lecture before us.

"I was asked the other day whether I had ever seen the colouring matter produced from an insect (*Cimex lectularius*) uncommonly disliked in this country. Some one in Australia, it was stated, had taken out a patent for procuring a beautiful colouring substance from this little creature. And if this should be the case, there is no doubt that they would run the hazard of extermination. I do not know whether this process has succeeded, but it illustrates the fact that there are hundreds of common things around us which may be made useful by the application of industry and intelligence.

"Speaking of insects and their products, I must here remind you that to the insect tribe we are indebted for chloroform—one of the most powerful agents in alleviating human pain. The little ant contains a substance called formic acid, about which old John Ray and Martin Lister corresponded a century ago; and they found that it contained an acid, and so it got into books as formic acid. It was found to be composed of a compound radical, formyle, and three atoms of oxygen. Dumas substituted chlorine for the oxygen, and thus obtained terchloride of formyle, which is chloroform. Then the Americans found that ether was capable of taking away all sensation from the human body; and Dr. Simpson, of Edinburgh, found that terchloride of formyle was more thoroughly adapted for this purpose than even ether. All this has arisen from the study of the habits of insects. There is no telling but that every insect has some use in relation to man.

* *Uses of Animals in Relation to the Industry of Man.* Silk; Wool; Leather; Bone; Soap; Waste. By E. Lankester, M.D., F.R.S. London: R. Hardwicke.

Such facts are inducements to study. Be not dismayed by obtaining no immediate results. Surely it is some reward, even if we do not get a money payment, to feel that we have not lived in vain; that we have exerted our brains to the utmost to fulfil the mission that God sent us to perform on this earth; and that we have left the world wiser and better for our work in it. But you may be assured some people will get the money. You and I are the better for rich men. These large capitalists are not keeping the money in their pockets: they are spending it in a variety of ways. It is the wildest of theories to think rich men are an injury to the poor: they better the poor man. Then let us help the men to get rich, seeing that they cannot deprive us of the blessings of intellectual research and exertion.

"But here I must cease my illustrations from the insect kingdom. The subject is a large one, and I hope some day again to bring it before you. I have before said there is no part of an animal which is not of use. So when they are dead, they ought not to be buried or cast away. I wish here to illustrate the whole subject of the uses of dead animals by this diagram, drawn up by Dr. Playfair, which gives you the value and uses of a dead horse. The value is not a large sum—from 20*s.* to 60*s.* on an average; but recollect that every application to art or science of this dead horse renders him of greater value; and it is for us, engaged in various ways in the arts of life, to see whether we cannot apply things that have hitherto been wasted.

"Value of a dead horse from 20*s.* to 60*s.*; average value, 40*s.* Weight in pounds, from 672 to 1138; average weight in pounds, 950.

	Weight.	Value.	Uses.
	lbs.		
Hair	1½	8*d.* to 1*s.* per lb.	Hair-cloth mattresses, plumes, and bags for crushing seed in oil-mills.
Hide	30	About 8*s.*	Leather.
Tendons	6	—	Glue and gelatine.
Flesh	Boiled 224	£1 8*s.*	Meat for men, dogs, and poultry.
Blood	60	—	Prussiate of potash and manures.
Heart & Tongue	—	—	A mystery.
Intestines	80	—	Covering sausages and the like.
Fat	20	3*s.* 4*d.*	Used for lamps after distillation.
Bones	160	4*s.* 6*d.* per cwt.	Knife-handles, phosphorus, superphosphate of lime, bone-dust.
Hoofs	6	8*s.* to 10*s.* per cwt.	Buttons, gelatine, prussiates, and snuff-boxes.
Shoes	5	5*s.* to 10*s.* per cwt.	Shots and old iron.

Five hundred horses die every week in London. The hair is worth from 8*d.* to 1*s.* per pound, and it is used for making hair-cloth, for stuffing mattresses, and making plumes, and bags for crushing seed in oil-mills. Then the hide, weighing 30 lbs., is worth 8*s.*, which is perhaps not a great deal of money; but when you have from 300 to 500 a-week dying within a radius of five miles of Charing Cross, it comes to some money. Then the skin is used for a variety of purposes; tendons you know may be made into gelatine, and glue, and jellies. I told you that you must not be particular about these jellies: when the poor old horse has drawn your carriage, served you in omnibus and cab, and died at last—even then you have not done with him, for his tendons may then serve you for your delicious jellies. Then, again, it is not an uncommon thing for man to eat horse-flesh. We do not eat it here knowingly, but they eat it on the Continent of Europe. There is a story of a Frenchman, who thought we sold meat for almost nothing, for we sold it on skewers for a penny a skewerful. Then there is the blood, which is carried to the prussiate of potash manufacturers. Then there are the internal tubes, which are used for the coverings of sausages; and, as I said of the jellies, we need not ask any questions about these coverings as long as they are sweet. The heart and tongue are evidently great 'mysteries,' for no one knows what is done with them. There is almost as much mystery about them as about the manufacture of the cloth of your coat. The heart, however, can be chopped up and mixed with sausage-meat, and the tongues may be sold for ox-tongues. On a recent occasion, when I stated this fact, a newspaper which reported my lecture added that it was all a mistake, and that the tongues were never sold for so inferior an article as ox-tongue: they were always sold as reindeer-tongues. Now, passing over the fat, which is worth 3*s.* 4*d.*, I need not tell you that horses' bones are as good as any other bones, and can be employed for the various purposes to which other bones are applied. The bones of a horse weigh about 160 lbs. and are worth 4*s.* 6*d.* per cwt. Then there are the hoofs, 6 lbs. of these, at 8*s.* to 10*s.* per cwt., which can be used for making buttons, prussiates, and snuff-boxes. I do not think that it is correct to say they are used in making glue. I think horses' hoofs are composed of the same material as hair. They are sold, it is true, to the glue maker, but he sells them to the prussiate manufacturer. Even the poor old shoes are worth from 5*s.* to 10*s.* per cwt.; and even with regard to all these substances employed, there is nothing which cannot be used again and again."

And, now, let us recommend this little volume to every reader who delights in "entertaining knowledge," and who has a shilling to spare for it. We promise him the expenditure will not be "waste."

TRADE CATALOGUES RECEIVED.

The Bulb Catalogue of Wm. Cutbush & Sons, Highgate.—Those who have been fortunate enough to see the annual exhibition of Hyacinths at the Highgate Nursery, know the attention paid to that beautiful flower by the Messrs. Cutbush. In the catalogue before us we have an enumeration and descriptive notes of the different varieties, which are arranged according to their colour. There are also excellent practical directions for their cultivation. Besides Hyacinths there are full lists of the other bulbous-rooted flowers—such as Tulips, Gladiolus, Ranunculus, Anemones, Liliums, Iris, Amaryllis, &c.

TO CORRESPONDENTS.

Melilotus leucantha (*E. Collins*).—It is a biennial, and quite hardy, needing no winter protection. To keep up an annual blooming it requires to be sown every year.

Celery (*A Novice*).—Put some well-decayed manure upon the surface about the plants. The rains and your waterings will wash it down to the roots. Water twice a-week with your soapsuds very diluted, and dissolve a quarter of an ounce of guano in every gallon. Do not use soapsuds constantly. Use rain water occasionally, with a peck of sheep's-dung dissolved in thirty gallons of it. Previously to earthing-up give the soil about the roots of the plants a good soaking. Whenever you need any particulars about a Show, write for them to its Secretary.

Loam for Potting (*R. Tozer*).—Not knowing the quality of the soil of your kitchen garden, we cannot say with certainty whether it would answer for potting purposes. If neither clayey or sandy, it would most probably. The reason for keeping potting loam exposed to the air, and frequently turning it, is for the purpose of having it well impregnated with the gases of the atmosphere, and to allow time for the vegetation of the seeds of weeds, and the escape of insect larvæ.

Mildewed Pears and Spotted Grapes (*R. F. H.*).—The leaves of your *Beurré d'Aremberg* and *B. bosc* Pears are mildewed—that is, they are attacked by a parasitic fungus, for all mildews are fungoid. There is no doubt that this is occasioned by excessive moisture, both in the air and soil, chiefly owing to the wet season, but promoted by growing Peas on the border. It is hopeless to remedy the evil now; but removing the Peas, and dusting the foliage with flowers of sulphur will tend to check the increase of the mildew, and so better enable the trees to provide for a crop next year. The berries of your *St. Peter's* and *Muscat of Alexandria* Grapes are attacked by the spot, an internal gangrene occasioned by the roots growing in too cold a soil, and exasperated by being grown in a cold greenhouse. Both those varieties require a stove heat; they will not ripen their fruit in your greenhouse.

Improving Gravelly Soil (*A Subscriber*).—Clayey loam, chalky loam, bricklayer's limy rubbish, *decayed* tanner's bark, crushed bones, common salt, and sea-weeds, may each and all be added to your soil for improving its staple. *Weak* liquid manure applied every evening to growing plants will also help you to obtain good crops.

Duchesse d'Angouleme Pear (*W. R. Elliott*).—The *Duchesse d'Angoulême* Pear is of the largest size, of a roundish obovate shape, and very uneven on its surface. The skin is of a dull yellow colour, covered with lines and freckles of russet. The stalk is very long, and inserted in a deep cavity. The flesh white, and when highly ripened buttery and melting, but frequently crisp, coarse-grained, and sweet. Ripe in November, or sometimes later.

Double White Petunia (*E. Jones*).—This was shown to some of the best judges, and they agreed in thinking it a very superior specimen. They thought one called *Antigone* is rather finer, and a purer white. Yours is tinged with green.

Large Pea (*F. P. G.*).—The large Pea you refer to was sent out by Messrs. Charlwood. It is called the *Brobdignag Sugar Pea.*

Offer of Specimens.—I have a few fine, dried specimens of *Aspidium cristatum*, of Hooker, found near here in marshes; *A. spinulosum*; also of the Arrow-head and several marsh plants. I shall be happy to give them, as far as they will hold out, to any one who wants them, on receipt of a stamped envelope of the address of the parties wanting them. The plant last named is now in flower.—Wm. Winter, *National School, Alderney, Beccles.*

Tropæolum (*P. M. K.*).—You have some of the tall autumn-blooming Tropæolums, or some one has played you a trick and substituted a true *Lobbianum* for *elegans*. At all events, you have not *Tropæolum elegans*,

for there is neither agent nor power on earth that could keep it from blooming most profusely in such a season as this. *Elegans* does not come true from seeds, and must always be kept on hand by cuttings only. Your flower and leaf were dried up. We believe it to be a Lantana. If we had a *fresh specimen* in bloom, we could find out what it is. We ought to receive all conceivable assistance from the senders of plants to be named. If you had said whether the plant is a forest tree or herbaceous, instead of sending a single leaf, and a glued dried flower, you might soon know all about it. Specimens should be sent in damp moss, and in a box, to keep them uncrushed.

Twelve Camellias (*Novice, Carshalton*).—The best twelve cheap Camellias for you are not the best for all others, but none are better for you than 1, *Old Double White;* 2, *Fimbriata*, white also, with a most beautiful fringe on the edges of all the petals; 3, *Lady Hume's Blush*, a French white of exquisite tint; 4, *Imbricata*, a glossy crimson with white blotches; 5, *Albertus*, the best Carnation at your price; 6, *Elegans*, and ask for plain *Elegans* and the variegated *Elegans*—both are very good and very large flowers, the plain is of the colour of the Cabbage Rose; 7, *Optima;* 8, *Coralina*, best crimson; 9, *Dampieri*, a splendid scarlet; 10, *Archduchesse Augusta*, a shaded Camellia, like the rose and purple of some Perpetual Rose; 11, *Marchioness of Exeter*, a very large, fine, rose flower; and 12, *Saccoi*, or *Saccoi nova*, as they call it. Get small plants with bloom-buds on.

Tiffany-houses (*Gloxinia*).—We have not had any experience in tiffany-houses with bedding-out plants; but we are of opinion that if you do not turn them out too soon the protection will be sufficient. We know Mr. Standish turns out his newly-grafted Rhododendrons from the propagating-house directly under a tiffany-house, and they do not seem to suffer at all nor flag in the least. The rain does come through the roof of these houses; but it is in the form of a heavy dew or light drizzle, and is beneficial rather than otherwise to the plants. Your suggestion with regard to your flower-beds seems a good one.

Garden Plan (*Stuart Baillie*).—We never plant whole gardens. You must plant your own pattern; and then, if submitted to us, we shall point out what we consider are errors and improvements. We think we have seen that garden before looking out from the east-end window and on the country beyond.

Names of Ferns (*H. F.*).—1, Goniophlebium catherinæ; 2, Gymnogramma pulchella; 3, Asplenium fragrans; 4, Blechnum polypodioides; 5, Blechnum occidentale; 6, Pteris geraniifolia; 7, Davallia solida; 8, Pæcilopteris heteroclita, *alias* flagellifera; 9, Asplenium ebeneum; 10, Cheilanthes profusa; 11, Dennstœdtia tenera, (apparently); 12, Asplenium Fabianum; 13, Pleopeltis Billardiera; 14, Microlepia polypodioides; 15, Phlebodium squammulosum; 16, Pteris crenata; 17, Asplenium cicutarium; 18, Davallia bullata; 19, Pteris aquilina; 20, Blechnum glandulosum; 21, Platyloma cordatum; 22, same as 11; 23, appears to be the same as 11. We append two observations, which may be addressed to readers in general as well as to "H. F." in particular: 1, It is unreasonable to send twenty-three plants for names at one time; 2, it is equally unreasonable to expect names at all unless fair samples (in fruit in the case of Ferns) are sent—not such miserable sterile scraps as were most of the foregoing.

Names of Plants (*G. Cragg*).—No. 1 is *Stachys lanata;* 2 is *Alyssum saxatile variegata;* 3 is *Arabis præcox*, or *affina variegata;* 4, *Cerastium tomentosum*. All very common plants; but propagate *S. lanata* as fast as you like—it is as sure to have a good run as anything we know. (*W. B.*).—1, *Veratrum nigrum*, a noble-looking plant when in bloom, and a fine plant to stand by itself upon the lawn; 2, *Platystemon californicum*, an annual, and a very pretty one. (*H.*)—These are not wild plants, but truants from gardens. The little white flower is the common garden Cress, *Lepidium sativum;* and the woolly plant is the common Rose Campion, *Lychnis coronaria*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

September 3rd. Heckmondwike. *Sec.*, Mr. Frederick Brearley. Entries close August 24.
September 4th. Pocklington (Yorkshire). *Hon. Sec.*, Mr. Thos. Grant, Pocklington. Entries close August 28th.
September 5th. Mirfield. *Sec.*, Mr. H. Rushforth, Escholt Place, Mirfield. Entries close August 27th.
September 5th. Keighley Agricultural Show. *Sec.*, R. Fawcett. Entries close August 29th.
September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.
September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.
October 4th. Middleton Agricultural. *Sec.*, Mr. T. Mills. Entries close September 27th.
October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.
December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

SHOWING.

If on the Derby-day we found ourselves on the road to Epsom we should think of racing; and therefore, being about to start for the Crystal Palace, we think of poultry-showing. Years ago when the first exhibitions took place we had large entries from the same person—one would enter from fifty to seventy pens. This was encouraged, if it were not originated, by those mistaken things—cups for collections and for the largest prize-takers. Then there came selling entries: this we recollect one year at Norwich—out of twenty-one entries of Dorking chickens nineteen belonged to one man. The same thing happened frequently in Cochins—seventy pens in a class would be found to be the property of four or five persons. These things tended to discourage smaller exhibitors; and the time was fast coming when competition would be limited to a few names—when the common mother, Birmingham, stepped in, and said no one should show more than four pens. This was necessary for her on account of the growing numbers of entries; but other Shows have only needed to limit the four entries to one class. The result has been most satisfactory in augmenting the number of exhibitors. The prosperity of these undertakings will always depend on the number of exhibitors and subscribers, and it is, therefore, manifestly advantageous to extend the list. As no one shows without a hope of success, so the number will always increase when small exhibitors are in the majority. They naturally believe there is greater likelihood of success against these than against the names that have ruled for years.

Nothing can be more encouraging to those who enter the lists than the constant springing up of new names; while nothing can be more satisfactory to continued exhibitors than their regular success, varied in degree as it must be of necessity. But spite of its oscillations between first and third, and sometimes perchance, or for a lesson, falling to the highly commended, yet, showing the merit and intrinsic value of the breed, and affording a sure reward for painstaking and judgment.

CRYSTAL PALACE POULTRY, PIGEON, AND RABBIT SHOW.

This Exhibition which commenced on the 25th, and does not close until to-morrow, has brought together about 700 pens; and, considering the coldness and wetness of the season, the chickens are for the most part marvellously well developed and in admirable condition. Some of the coloured Dorking pullets are of that full growth as to render it no longer a cause for wonder, that they have been hatched in March, and prepared for maternal duties in July.

The Exhibition is held in the north wing of the Crystal Palace, and the ample space allowing the pens to be in single rows, and the equal diffusion of light avoid all well-grounded complaints of unfavourable positions being assigned to any. The cleanliness is most remarkable, and the size of the structure and the youthfulness of the birds prevent any discordance occasioned by defiant crowing. The attention to feeding is good as usual, and we can testify that both catalogues and prize lists were ready for all applicants when the Exhibition opened on Saturday. That this facilitated the sale of birds is certain, and we have the best authority for stating, that a large number of pens changed ownership on the first day.

We may observe in reference to the poultry, that this was exclusively a show of birds hatched during the present year. The *Spanish* were few in number, not mustering more than fifteen pens; but the prize pens were very superior. Some of the chickens were much too young to have any chance for a prize.

The *Coloured Dorkings* of Mr. C. H. Wakefield were admirable specimens; and though Mr. G. Hanks's were otherwise excellent, yet we advise him not to breed from birds with combs lopping over like those of Spanish hens, such as appeared in his prize pen. In *White Dorkings* Captain Beardmore found a worthy vanquisher in the Rev. G. F. Hodson; both these prize pens were very good.

In *Buff Cochins* we see a vast improvement. Mr. T. Stretch's cockerel was rather too much of a cinnamon colour to match with the pullets. Mr. Kelleway's were admirable birds; we never saw birds more heavily booted, more compact, or in finer condition. In *White Cochins* we see rather a decline. Mrs. F. Blair's were good in form and condition, but small. The *Buff Cochin-China Cock* (pen 126) in appearance was quite equal to the prize pen; but when handled he was evidently defective in breadth.

In *Game*, the *Whites* of Mr. S. Ridley, the *Black-breasted Reds* of Mr. H. E. Porter and W. H. Swann were beautiful specimens, and dubbed as they were bore every appearance that could be desired by those who know what are requisites for champions in the pit. No better evidence can be given, that in the eyes of first-class Judges, the colour of the legs of these birds is immaterial than the fact that, the three prize cocks had all legs of different colours—namely, willow, dark grey, and yellow.

In *Pencilled Hamburghs* the birds of Mr. R. R. Clayton and Mr. R. Oxley left nothing to be desired; and the same remark applies to the *Silver-spangled* of Mr. J. Robinson.

The *Polish* of all varieties were very few in numbers, but there were among them some first-rate birds.

Malay chickens at the best of times do not look sightly, and the present season did not improve them. The prize pens, however, will grow up into first-rate adults.

In the *any other breed* class the *Crève Cœurs* of the Hon. A. D. Willoughby and the *Cuckoo Cochin-Chinas* of Mr. W. Dawson deserved their success.

The *Gold-laced Bantams* were surpassingly good; but the *Silver* seem to become less white every year. The other classes of Bantams were very well represented.

The *Geese* were generally first-rate; and when we state that the prize Toulouse Goslings of Mr. Fowler, though only fourteen weeks old, weighed 16 lbs. each, our readers will appreciate the superiority of the birds. Ten years since a young Goose at Michaelmas could rarely be found weighing more than 10 lbs.

The *Aylesbury Ducks* of Mr. Fowler, and the *Rouens* of the same gentleman and of Mr. Punchard, were about the finest birds under four months old we ever saw. Among *Ducks of any other Variety*, the *Buenos Ayrean* of Capt. Beardmore, and the *Casarcas*, or Ruddy Sheldrakes, of Mr. T. H. D. Bayly, deserve especial notice.

Of *Pigeons* there were about 230 pens, and the best judges agreed in considering them as far above an average in merit. Of these and of the *Rabbits* we shall give more particulars next week. The *Chinchillas*, or *Silver Greys*, we think might be bred profitably for the furrier. Mr. Baker exhibited two Hare-Rabbits. The doe bears a nearer resemblance to the Hare than does the buck, yet we entertain doubts, which we should like to have removed, whether these are the cross-breds they are alleged to be.

Judges.—*For Poultry*, Messrs. Baily and Hewitt. *For Pigeons*, Messrs. Cottle and Corker. *For Rabbits*, Messrs. Fox, Housden, and Webster.

Spanish, *Class I.*—First, J. H. Craigie, Woodlands, Chigwell, Essex. Second, Marchioness of Winchester, Amport St. Mary, Andover. Third, J. R. Rodbard, Aldwick Court, near Bristol. *Class II.*—First, C. Atkins, Sewer Cottage, Thames Bank, Pimlico. Second, Mr. J. R. Rodbard. Highly Commended, J. Jenner, 4, East Street, Lewes, Sussex. *Cocks.*—First, C. Atkins. Second, withheld..

Dorking (Coloured).—First, W. Bromley, Acock's Green, near Birmingham. Second, T. Burgess, jun., Burley Dam, Whitchurch, Salop. Third, G. Hincks, Sare Hole, near Hall Green, Birmingham. Fourth, W. Bromley. Highly Commended, Rev. M. Amphlett, Church Lench Rectory, near Evesham; P. Mason, Brightlingsea Hall, Essex. Commended, Lady L. Thynne, Muntham Court, Worthing; Rev. J. G. A. Baker, Old Warden Vicarage, Biggleswade, Beds. Mrs. F. Blair, Balthayock, Inchmartine, Inchture, N.B.; G. Chadwin, Tollard Royal, Salisbury; M. Leno, jun., The Pheasantry, Markyate Street, Herts; C. Smith, Durnford, Salisbury. *Pullets.*—First, C. H. Wakefield, Malvern Wells. Second, G. Chadwin. Highly Commended, Mrs. F. Blair. Commended, Sir J. Paxton, Rockhills, Sydenham.

Dorking (White).—First, Capt. J. Beardmore, H.A., Uplands, near Fareham, Hants. Second, Rev. G. F. Hodson, North Petherton, near Bridgewater. Third, Mrs. F. Blair, Balthayock, Inchmartine, Inchture, N.B. Commended, Capt. Beardmore, H.A.; J. Robinson, Vale House, Garstang.

Dorking Cocks (Coloured and White).—First, Mrs. F. Blair, Balthayock, Inchmartine, Inchture, N.B. Second, H. Newland, Worthing, Sussex. Third, S. Lewry, Ashington, Sussex. Highly Commended, Lady J. Cornwallis, Linton Park, Staplehurst; G. Chadwin, Tollard Royal, Salisbury.

Cochin-China (Cinnamon and Buff).—First, T. Stretch, Marsh Lane, Bootle, Liverpool. Second, J. W. Kelleway, Merston, Isle of Wight. Third, H. Tomlinson, Balsall Heath Road, Birmingham. Highly Commended, Rev. G. Gilbert, Claxton, Norwich; Mrs. H. Fookes, Whitechurch, Blandford, Dorset; Miss A. Watkin, Freedom Cottage, Walkley, near Sheffield. Commended, Mrs. H. Fookes.

Cochin-China (Brown and Partridge-feathered).—First, P. Cartwright, Oswestry. Second, Miss V. W. Musgrove, West Tower, Aughton, near Ormskirk. Third, Mrs. H. Fookes, Whitechurch, Blandford, Dorset. Commended, Miss V. W. Musgrove.

Cochin-China (White).—First, W. Dawson, Hopton, Mirfield, Yorkshire. Second, Mrs. F. Blair, Balthayock, Inchmartine, Inchture, N.B. Highly Commended, Mrs. F. Blair.

Cochin-China Cocks (Coloured and White).—First, T. Stretch, Marsh Lane, Bootle, Liverpool. Second, Major F. C. Hassard, R.E., Gatcomb House, Hilsea, Hants. Highly Commended, J. W. Kelleway, Merston, Isle of Wight.

Brahma Pootra.—First and Second, G. Botham, Wexham Court, Slough. Highly Commended, C. H. Adames, Birmingham; J. K. Fowler, Prebendal Farm, Aylesbury; A. H. Philpot, Bromyard. Commended, Mrs. F. Blair, Balthayock, Inchmartine, Inchture, N.B.

Brahma Pootra Cocks.—Second, G. Botham, Wexham Court, Slough. (First withheld.)

Game (White and Piles).—First, T. Whitaker, Melton Mowbray. Second, S. Ridley, Clayton, Sussex. Third, R. R. Clayton, Hedgerley Park, Slough. Highly Commended, J. Fletcher, Stoneclough, near Manchester. Commended, J. Monsey, Thorn Lane, Norwich.

Game (Black-breasted and other Reds).—First, W. H. Swann, Farnsfield, Southwell, Notts. Second, E. Archer, Malvern. Third, H. E. Porter, Bath Cottage, Hampstead. Highly Commended, Rev. T. L. Fellowes, Beighton Rectory, Acle, Norfolk. Commended, W. Rogers, Woodbridge, Suffolk.

Game (Blacks and Brassy-winged, except Greys).—First and Third withheld. Second, Messrs. Bullock and Rapson, Leamington.

Game (Duckwings and other Greys and Blues).—First, S. Matthew, Chilton Hall, Stowmarket, Suffolk. Second, P. Mason, Brightlingsea Hall, Essex. Third, W. Bentley, Salt Horn Inn, Low Moor, Bradford, Yorkshire.

Game Cocks.—First, E. Archer, Malvern. Second, W. Bentley, Salt Horn Inn, Low Moor, Bradford, Yorkshire. Third, E. Bebbington, Minshull Vernon, near Middlewich, Cheshire.

Hamburgh (Gold-pencilled).—First, R. R. Clayton, Hedgerley Park, Slough. Second, F. Hardy, Prince of Wales Inn, Bowling Old Lane, Bradford, Yorkshire. Third, R. Oxley, Windsor, Berks. Highly Commended, Messrs. Carter and Valiant, Poulton-le-Fylde, near Preston; R. R. Clayton. Commended, R. R. Clayton; Miss H. A. Sivewright, Peppar Park, Reading.

Hamburgh (Silver-pencilled). First and Third, R. Oxley, Windsor, Berks. Second, Master T. B. Keable, Rowde Field, Devizes, Wilts.

Hamburgh Cocks (Gold or Silver-pencilled).—First, withheld. Second, C. Catt, Middle Street, Brighton.

Hamburgh (Gold-spangled).—First, G. Brook, East Parade, Huddersfield. Second, J. Bamforth, Holmfirth, Huddersfield. Third, withheld.

Hamburgh (Silver-spangled).—First, J. Robinson, Vale House, near Garstang. Second, J. Andrew, Waterhouses, Ashton-under-Lyne. Third, H. Carter, Upperthong, near Holmfirth, Yorkshire.

Hamburgh Cocks (Gold or Silver-spangled).—First, H. Carter, Upperthong, near Holmfirth, Yorkshire. Second, W. R. Lane, Bristol Road, Birmingham.

Polish Fowl (Black with White Crests).—First, G. Ray, Ivy Cottage, Minestead, Lyndhurst, Hants. Second, T. P. Edwards, Lyndhurst, Hants.

Polish Fowl (Silver).—First, G. C. Adkins, Lightwoods, near Birmingham. Second, Messrs. Bird & Beldon, Bradford, Yorkshire.

Polish Cocks.—First, G. C. Adkins, the Lightwoods, near Birmingham. Second, T. P. Edwards, Lyndhurst, Hants.

Malay.—First, N. Sykes, jun., Globe Road, Mile End. Second, S. Saunders, Portman Terrace, Globe Road, Mile End. Highly Commended, W. Manfield, jun., Dorchester. Commended, A. G. Brooke, Cumberland Street, Woodbridge, Suffolk.

Any other Distinct Breed.—First, W. Dawson, Hopton, Mirfield, Yorkshire. Second, J. Andrew, Waterhouses, Ashton-under-Lyne. Third, C. Coles, Fareham, Hants. Fourth, Hon. A. D. Willoughby, Caen Lodge, Twickenham.

Bantams (Gold-laced).—First, U. Spary, Markyate Street, Herts. Second, L. Peters, Moseley, near Birmingham.

Bantams (Silver-laced).—Second, U. Spary, Markyate Street, Herts. (First withheld.)

Bantams (White).—First, L. Peters, Moseley, near Birmingham. Second, F. Hardy, Prince of Wales Inn, Bowling Old Lane, Bradford, Yorkshire. Highly Commended, Rev. P. W. Story, Charwelton House, near Daventry. Commended, J. Monsey, Thorn Lane, Norwich.

Bantams (Black).—First, N. Sykes, jun., Globe Road, Mile End. Second, T. Barber, Globe Cottage, Globe Road, Mile End.

Bantams (any other variety).—First, Capt. J. Beardmore, H.A., Uplands, near Fareham, Hants. Second, J. Camm, Farnsfield, Southwell. Highly Commended, H. Sheild, Northampton. Commended, T. H. D. Bayly, Ickwell House, near Biggleswade, Beds; J. Monsey, Thorn Lane, Norwich; J. R. Rodbard, Aldwick Court, Wrington, near Bristol; H. Sheild, Northampton.

Geese (White).—First and Second, W. Manfield, jun., Dorchester. Commended, F. A. Lavender, Biddenham, near Bedford. Commended, Marchioness of Winchester, Amport St. Mary, Andover; Mrs. E. Herbert, Powick, near Worcester.

Geese (Grey and Mottled).—First and Second, J. K. Fowler, Prebendal Farm, Aylesbury. Highly Commended, R. Tate, Driffield, York. Commended, Mrs. E. Herbert, Powick, near Worcester.

Ducks (Aylesbury).—First and Second, J. K. Fowler, Prebendal Farm, Aylesbury. Highly Commended, J. K. Fowler; T. Rose, Dadbrook House, Aylesbury.

Ducks (Rouen).—First, J. K. Fowler, Prebendal Farm, Aylesbury. Second, C. Punchard, Blunt's Hall, Haverhill, Suffolk. Highly Commended, C. Punchard.

Ducks (any other variety).—First, T. H. D. Bayly, Ickwell, House, near Biggleswade. Second, Capt. J. Beardmore, H.A., Uplands, near Fareham, Hants. Highly Commended, Hon. J. M. H. Major, Thornham Hall, Eye, Suffolk. Commended, T. H. D. Bayly.

Turkeys.—First and Second, Rev. T. L. Fellowes, Beighton Rectory, Acle, Norfolk. Highly Commended, R. Tate, Driffield, York; T. Williams, Southcote House, near Reading.

PIGEONS.

Powters or Croppers—*Cocks of any Colour.*—First, F. G. Stevens, Axminster, Devon. Second, J. Paton, Bigg, Stewarton, Ayrshire. Third, withheld. *Hens of any Colour.*—First, F. G. Stevens. Second, J. Paton. Third, G. W. Long, Kingsland, Middlesex.

Carriers—*Cocks of any Colour.*—First, Second, and Third, W. W. Hayne, St. James's Road, Croydon. Highly Commended, W. W. Hayne. Commended, W. W. Hayne. (A very excellent class.) *Hens of any Colour.*—First, Second, and Third, W. W. Hayne. Highly Commended, W. W. Hayne. Commended, W. W. Hayne. (A very excellent class.)

Almond Tumblers.—First, Marchioness of Winchester, Amport St. Mary, Andover. Second, F. G. Stevens, Axminster, Devon. Third, F. C. Esquilant, 346, Oxford Street.

Dragons—*Blue.*—Prize, S. Millin, Silver Street, Notting Hill.

Dragons (of any other colour).—Prize, G. Goore, Aigburth Vale, near Liverpool. Commended, J. C. Brierley, Gedling, near Nottingham.

Short-faced Mottles—*Black.*—Prize, F. White, Crescent Lane, Clapham Common. Highly Commended, H. Child, jun., Shelbourne Road, Birmingham. *Red.*—Prize, F. G. Stevens, Axminster, Devon. *Yellow.*—Prize withheld.

Short-faced Baldheads—*Black.*—Prize, S. Millin, 8, Silver Street, Notting Hill. *Blue.*—Prize, F. C. Esquilant, 346, Oxford Street. *Red.*—Prize withheld. *Silver.*—Prize, J. W. Edge, Ashton New Town, Birmingham. *Yellow.*—No entry.

Short-faced Beards—*Black.*—Prize withheld. *Blue.*—Prize, W. Squire, Hanwell, Middlesex. Highly Commended, E. Archer, Westbourne Villa, Forest Hill. *Red.*—E. Archer. *Silver.*—Prize, W. Squire. Commended, W. Squire. *Yellow.*—Prize, F. C. Esquilant, 346, Oxford Street.

Short-faced Tumblers.—*Black.*—Prize, E. Archer, Westbourne Villa, Forest Hill. *Blue.*—Prize, H. Morris, Perry Vale, Forest Hill. *Red.*—Prize, S. Millin, Silver Street, Notting Hill. *Silver.*—No entry. *Yellow.*—Prize, F. C. Esquilant, 346, Oxford Street.

Jacobins—*Black or White.*—Prize, F. C. Esquilant, 346, Oxford Street. *Red.*—Prize, W. Choyce, jun., Sibson, near Atherstone, Warwickshire. *Yellow.*—W. Hewett, jun., Forest Hill.

Owls—*Blue.*—Prize, W. Hewett, jun., Forest Hill. *Silver.*—Prize, H. Morris, Perry Vale, Forest Hill. *Yellow.*—Prize, H. Morris. Highly Commended, G. Fawdon, 50, Pipewellgate, Gateshead. *Black or White.*—W. Hewett, jun. Highly Commended, S. Millin, 8, Silver Street, Notting Hill.

Nuns—*Black.*—Prize, W. Hewett, jun., Forest Hill. *Red.*—Prize, H. Morris, Perry Vale, Forest Hill. *Yellow.*—Prize, J. W. Edge, Aston New Town, Birmingham. *Blue.*—Prize, H. Child, jun., Shelbourne Road, Birmingham. *Red.*—Prize, W. Hewett, jun. *Yellow.*—Prize, W. Hewett, jun. *Black or any other Colour.*—Prize, H. Child, jun. Commended, S. Summerhayes, Taunton.

Fantails—*Black.*— Prize, H. Morris, Perry Vale, Forest Hill. *Blue.*—Prize, J. Baily, jun., Rosemary Farm, Blackwater, Hants. *White.*—Prize, E. Archer, Westbourne Villa, Forest Hill.

Barbs—*Black.*—Prize, G. Goore, Aigburth Vale, near Liverpool. *White.*—Prize, J. H. Craigie, Woodlands, Chigwell, Essex. *Yellow.*—Prize, G. Borrett, Monkwell Street, City. *Red or any other Colour.*—Prize, G. Borrett.

Magpies—*Yellow.*—Prize, H. Morris, Perry Vale Forest Hill. *Black.*—Prize, S. Summerhayes, Fore Street, Taunton. *Red.*—Prize, Miss S. A. Elliot, Osborne House, Taunton. Commended, H. Morris, Perry Vale, Forest Hill.

Trumpeters.—Prize, F. Key, Beverley, Yorkshire.

Spanish and Leghorn Runts.—First, S. C. Baker, the Pheasantry, Beaufort Street, Chelsea. Second, H. Child, jun., Shelbourne Road, Birmingham. Very Highly Commended, S. C. Baker. Highly Commended, F. G. Stevens, Axminster, Devon. Commended, T. D. Green, London Road, Saffron Walden, Essex. (An extraordinary good class). Two Prizes, Marchioness of Winchester, Amport St. Mary, Andover. Two Prizes, F. Bunge, jun., Fowkes Buildings, Great Tower Street, City. (A very interesting class.)

RABBITS.

For Longest Ears.—First, W. S. Roffey, 6, Albert Street, Woolwich. Second, J. Angus, William Street, Bull Fields, Woolwich.

For Black and White.—First and Second, H. Hindes, jun., Red Lion Street, Norwich. Highly Commended, J. Haile, 11, Wood Street, Millbank, Westminster; H. Hindes, jun. (A very interesting class.)

For Yellow and White.—First and Second, J. Hincks, jun., Sare Hole, near Hall Green, Birmingham. Highly Commended, A. Bancks, 20, Piccadilly; W. Robinson, Chiswick House, Middlesex; E. Russell, Lichfield Road, Aston, Birmingham.

For Tortoiseshell.—First, G. Manly, 13, Peal Street, Notting Hill. Second, H. Hindes, jun., Red Lion Street, Norwich. Highly Commended, J. Haile, 11, Wood Street, Millbank, Westminster; W. Parry, Woolwich.

For Blue and White.—First, J. Hincks, jun., Sare Hole, near Hall Green, Birmingham. Second, W. Nott, Timber-yard, North Street, Chelsea. Commended, C. P. Lashmar, Oxted, Surrey.

For Grey and White.—First, H. Hindes, jun., Red Lion Street, Norwich. Second, W. Martin, Middle Scotland-yard, Whitehall. Highly Commended, J. Haile, 11, Wood Street, Millbank, Westminster; H. Hindes, jun.; T. Pinchbeck, 252, Great King Street, Hockley, Birmingham.

For Self-colour.—First, G. Anns, 1, Sussex Terrace, Westbourne Grove, Bayswater. Second, J. Brown, 162, Unett Street, Birmingham. Highly Commended, J. Angus, 16, William Street, Bull Fields, Woolwich; W Griffin, 11, William Street, Bull Fields, Plumstead, Kent; W. S. Roffey 6, Albert Street, Woolwich.

For Weight.—First, C. Sellen, 262, Rotherhithe Street, Surrey. Second, J. Murrin, George Street, Hyde Vale, Greenwich.

Foreign Rabbits.—First, J. Baily, jun., Rosemary Farm, Blackwater, Hants. Second, C. Sellen, 262, Rotherhithe Street, Surrey.

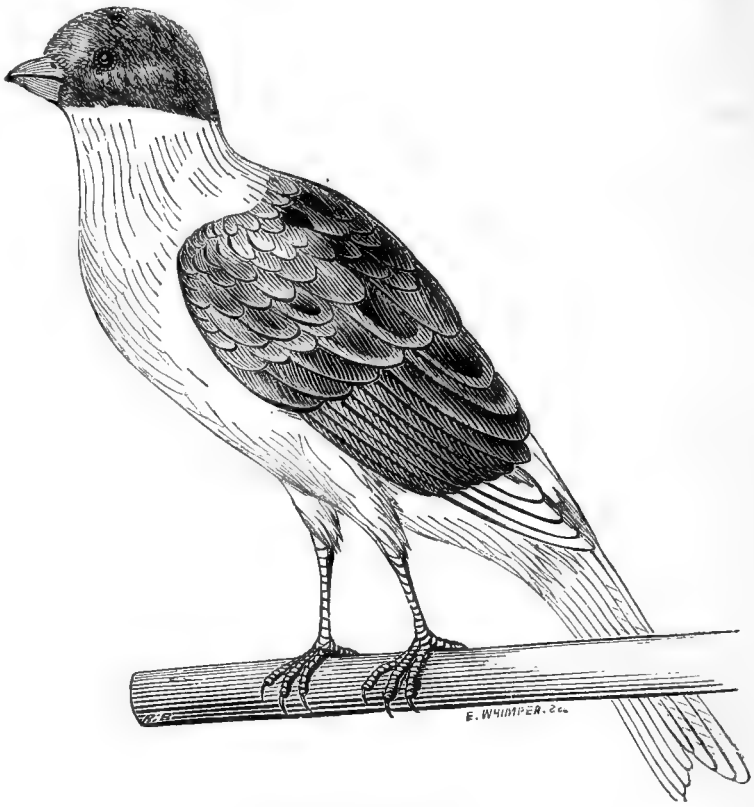
THE CANARY AND THE BRITISH FINCHES

(*Continued from page* 308.)

7th Variety.—The Continental or Regular Pieds.

I have, in a previous chapter, intimated that irregularly patched, mottled, or pied birds, however pretty they may appear to the tyro, are totally disregarded by fanciers. A pied bird to be of any value must be exact, regular, and even in its markings, as well as being bred for some generations to that particular form of marking in which its value consists. It will, therefore, easily be understood, that the same care is necessary to breed good Pieds as is required to produce any other variety in perfection. In some parts of the Continent, particularly in Belgium, I have met with a very pretty pied Canary, which is bred with much care and exactness. The head and shoulders of the wings are coloured, mostly cinnamon, the rest of the plumage is light, varying from mealy through the various shades of lemon and jonque, to a bright golden orange. Thus the bird appears to wear a helmet on its head, and shield on its back.

I have endeavoured to represent this variety in the annexed plate. The whole of the top of the head is coloured, and of the wings, the secondary quill feathers, and the larger and lesser wing-coverts, as also scapular feathers, are dark, or coloured, with great regularity. The pinion-feathers and the tail generally white, and the rest of the plumage of a more or less intense yellow.



In size they are rather longer than our commoner kinds. A few imperfect birds of this breed are sometimes to be obtained in England; but I see no reason why they should not be bred here in as great perfection as elsewhere.

Many of the handsomest Pieds are, however, crested birds of great beauty. M. Hervieux, 1718, remarks:—"Canary birds with regular black and lemon-colour copple-crowns, are, at this time, reckoned the most beautiful and highest valued sort."

Herr Johann Matthäus Bechstein, who has given so much information respecting the Canary in his second volume of the "Natural History of the Birds of Germany," at page 170 writes as follows:—"So is each bird the more valuable according to the regularity of the placing together of the various colours which he has to present to you. Those which are yellow or white on the body, and having sable-coloured wings, head, and tail (particularly if they are crowned), are at present esteemed above all the most beautiful" (1807). "Next to these follow the golden-yellow, with black, blue, or dark grey head (either with or without crest, or coloured wings and tail)."

In a note he remarks:—"Sometimes the tail is the colour of the body, and there are likewise those in which the primary wing-feathers are of the colour of the body, while the head, the covert-feathers, and secondaries of the wings only have the dark markings (called Schildvögel), and these birds are esteemed rare and beautiful."

This description exactly corresponds with what I have given in the previous part of this chapter of birds bred in Belgium, and rare in this country. Further on he remarks:—"Then there are the Blackish or Grey, with yellow head or collar; Yellow, with black or greenish turned-crowns; White, with red, brown, and black shields; Ashen Grey; almost Black, with yellow breasts and white heads and tails; quite Black; Semmel-coloured (the colour of a French roll), with yellow crest and tail, and so forth, which are of pre-eminent worth."

We can easily perceive that the older fanciers have most highly prized the crested Pieds. We also notice the great pains which the London fanciers bestow on their favourite to obtain the ephemeral beauty of dark wings and tail, that last so short a

time. Yet there is a breed of Pieds that combine these desirable qualities, their markings being permanent, and their form closely resembling that of the admired erect Belgian. This Nonpareil of the Canary Fancy, if I may be allowed so to call this variety, is but little known in this country, we must seek them on the Continent. They are, in my opinion, really beautiful birds, of great length, erect carriage, and rather stout build. The head is adorned with a full crest, dark-coloured, nearly black; the upper mandible slighly coloured, the lower paler. The colouring of the crest must not descend below the curl of feathers. The whole of the wings—that is to say, the eighteen quill-feathers in each wing, the larger and lesser wing-coverts, and the scapular feathers, are coloured dark like the crest, as also the twelve quill-feathers of the tail and a few of the larger tail-coverts. The rest of the head, neck, breast, rump, thighs, vent, &c., are mealy or jonque. On the breast the feathers slightly fold over, forming a frill. The few I have had were of good constitutions and excellent singers, and I can confidently recommend them to the notice of English fanciers. When the body is of a rich orange jonque, and the crest, wings, and tail, cinnamon (or, still better, brighter green), they would leave nothing to be desired; but I have not yet seen a Green Pied of this variety.—B. P. Brent.

(*To be continued.*)

LIGURIAN BEES:

THEIR FIRST INTRODUCTION INTO SCOTLAND.

Having failed for the present to raise Ligurian queens in sufficient number to supply those who have applied to me, I have recently turned my attention exclusively to increasing my own stocks, with the view of avoiding a similar disappointment next year. Whilst doing this, however, one artificially-raised queen proved so dark that I feared to introduce her into one of my own hives, and, therefore, despatched her to a Berwickshire correspondent, who was so desirous of possessing the new species, that he was willing to run all risks. The following extracts from his letters may be considered interesting, describing as they do the adventures of the first Ligurian queen raised in England by artificial means, and despatched to seek her fortune as the first of her species that has been introduced into Scotland.

"*4th July*, 1860.

"Dear Sir,—I duly received yours of the 30th ult. on the 2nd inst., informing me of your sending the queen; but the box did not arrive until yesterday at mid-day. However, notwithstanding their detention, they arrived safe. Judging from the specimens of Ligurian bees accompanying the queen, they are much prettier than I had expected to see them. I took a queen from a hive of about 5 lbs. of bees in the afternoon, placed the box on the top of the hive, and withdrew the perforated division this morning, when I expected they would amalgamate in a friendly way; but I am sorry to find that several of the Ligurians are already killed. I need not say that I regret this much, as it is a very cruel reception for such far-travelled interesting strangers. However, I trust the queen is still safe, but will let you know ere long how they are getting on.—J. S."

"*12th July*, 1860.

"Dear Sir,—It may be better for me at once to answer your inquiries in reference to the state of the Ligurian queen and bees on their arrival, as it may be some time yet ere the young brood make their appearance outside.

"I am not quite certain as to what quantity of food was unconsumed when they arrived, as I did not pay particular attention to it; but there was some of it in the net, and both queen and bees were hanging in a cluster on it, much in the same position as a swarm does when without comb. On taking off the lid in the room, only one bee, which happened to be on the other side of the box, attempted to escape; but, of course, only got to the window, when I replaced it. They had evidently been very composed during the journey, for there was not the slightest appearance of their having attempted to gnaw the net, and it seemed quite adapted for their holding on by. I was quite taken up with the ingenuity of the plan, which answered the double purpose of feeding through and holding by.

"I had no perforated zinc at hand, but tied a piece of net over and inverted the box. The next morning I withdrew the net after I heard that the bees were aware of their loss. On withdrawing the partition I placed the box so that I could see their coming into contact with the queen, and was not a little amused at the way they went about it. About six hours after they were put together I took off the box, as I could see that it was empty, only a small portion of food remained. All the Ligurians have been killed. I saw one the second day go into the hive, but have seen none since. The stock is doing well—about 40 lbs.—quite full of comb, and the queen promises to be very prolific, as there is a great deal of young brood in the comb that has been wrought since she was put in—both worker and drone. I am anxiously awaiting their appearance, and should be glad to find them turn out well, as there will be no lack of visitors to see them when they are fairly out. I can see that some regard the attempt to introduce them here as a hopeless scheme, notwithstanding all that has been said and published about them.—Yours, J. S."

"*14th August*, 1860.

"Dear Sir,—The Ligurians have now made their appearance in great numbers, and far exceed any expectations which I had entertained as to the probable result. I may tell you that I am exceedingly well pleased, and quite satisfied with my bargain. They appear to be fully as well marked as the lightest you sent with the queen. When the season is a little farther advanced I will send you one or two, in order that I may have your opinion as to their purity.

"You are aware that I put the queen into the hive on the 4th July. The first time I saw her brood outside was on the 31st July, when I saw two of them. I was from home on the 1st inst., but saw some four or five on the 2nd. The 3rd and 4th were so dull that none could get out; but on the 5th they came out in great numbers for their first flight, and have been rapidly increasing ever since. I have no doubt but they would have made their appearance several days earlier if the weather had been warm. The month of July has been most unfavourable for bees here—not a few new swarms have died from starvation during the last three weeks.

"My Ligurian hive was preparing for swarming, as they had a young queen in her cell; but after the weather got so cold they destroyed her, which caused me no little regret, as I might have taken her out and put her into a queenless stock.

"As honey-gathering is over here, I have got my Ligurian hive placed with my others in a very suitable situation, amongst the heather, so that with the increase of young bees I shall have a good criterion of their honey-gathering qualities, if the weather be favourable. J. S."

I need hardly say that the successful result of this experiment has afforded much gratification to—A Devonshire Bee-keeper.

FEEDING BEES.

Would not crystallised sugar do as well as loaf sugar for making food for bees? It is a halfpenny per pound cheaper, which is important to me, as I have some hundreds of pounds to make. My bees have no honey, and are entirely dependent on me; but I suppose, by supplying them liberally, I shall be able to save them. Should the full quantity be given now, and how much?

The season in this county (Hampshire), has been unexampled. I have lost six out of twenty-nine stocks, and am now feeding abundantly. I have just heard of one man in the New Forest who had three hundred stocks, two hundred of which are dead. —One Cured of Apimania.

[Never having tried crystallised sugar as food for bees we are unable to pronounce on its merits. We believe that there is less sugar and more water in it than in common sugar. We put 8 lbs. of water to 12 lbs. of lump sugar, and this mixture having been boiled a minute or two, forms nearly 20 lbs. of food, upon which bees will subsist very well during winter. The addition of a little honey renders it more acceptable. Liberal feeding will, probably, save your bees. Swarms should be fed up to at least 15 lbs. nett weight in October, and stocks to 20 lbs. and upwards, according to age; old combs weighing much heavier than new ones.]

OUR LETTER BOX.

Detecting Sex in Brahmas.—Sometimes the cocks of a brood will show very young; but as a rule they are not distinguishable before they are eight weeks old. Even then there is sometimes difficulty in distinguishing between a forward pullet and a backward cockerel. If they were hatched in April instead of July you might expect your chickens to begin laying (being well fed) at eighteen weeks old; but we should not advise you to look for eggs from July birds before January. No weather injures this breed; but long cold nights, dark days, and frozen ground and water, are not favourable to the attainment of maturity.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	SEPTEMBER 4—10, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
4	Tu	Sonchus canadensis.	29.995—29.921	71—41	N.W.	—	19 af 5	38 af 6	27 7	19	1 14	248
5	W	Sonchus arvensis.	30.130—29.994	70—48	E.	—	21 5	36 6	47 7	20	1 34	249
6	Th	Lactuca saligna.	29.858—29.697	65—45	S.W.	·30	23 5	34 6	14 8	21	1 54	250
7	F	Lactuca sylvatica.	29.878—29.839	67—53	S.W.	—	24 5	32 6	49 8	22	2 14	251
8	S	Lactuca villosa.	29.975—29.922	71—57	S.W.	0·1	26 5	29 6	39 9	☾	2 34	252
9	Sun	14 Sunday after Trinity.	29.876—29.805	69—42	S.W.	—	27 5	27 6	42 10	24	2 55	253
10	M	Serratula alpina.	30.181—30.054	69—33	W.	—	29 5	25 6	0 12	25	3 15	254

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 69.5° and 45.8° respectively. The greatest heat, 83°, occurred on the 7th, in 1846; and the lowest cold, 30°, on the 6th, in 1850. During the period 128 days were fine, and on 103 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

The long-continued wet weather has favoured the growth of weeds, and rendered their destruction a matter of difficulty. The best way to get rid of them, when hoeing and raking are not practicable, is to dig them down, especially the young generation. As the rapid spread and extensive virulence of the Potato disease will make other vegetables more valuable, no time should be lost in filling up every available foot of ground with Winter Greens, Coleworts, and other such edible garden stuff. *Broccoli*, where there has not been sufficient planted, large plants may yet be put out with success; to be laid in with the spade in a slanting direction. Earth up the advancing crops. *Cardoons*, earth up, for blanching in favourable weather. *Cabbage*, prick out the seedling plants intended to stand the winter; to be pricked out four or five inches apart in nursery-beds. *Celery*, when earthing up be careful to prevent any portion of the earth from falling into the heart of the plant, the small leaves and suckers being previously removed, and each plant to be tied up loosely with matting. *Endive*, continue to blanch and plant out from successional sowings. *Lettuce*, another sowing of the various sorts may be made: it is always better to have a superfluity in the spring than otherwise. *Mushroom-beds* may now be made either in sheds or in the open ground. *Parsley*, thin the summer sowing while in a young state; the plants will then gain strength to stand the winter. A portion of the spring sowing should be cut down. *Tomatoes*, as they are likely to be very late this season it is advisable to prevent the plants from making further growth by constant stopping, and to remove any leaves that may be shading the fruit.

FLOWER GARDEN.

Where worms are very troublesome on lawns, water with clear lime water of full strength, this will bring them to the surface, where they can be easily swept together and gathered up. *Wistaria sinensis*, Jasmines, Virginian Creepers, China Roses, Heartsease, tree Violets, &c., to be propagated by cuttings. Put in cuttings of various evergreens.

FRUIT GARDEN.

Particular attention to be given to the gathering of the earliest varieties of Pears and Apples. As a general rule, Pears may be considered fit when the stalk parts from the branch by merely raising the fruit to a horizontal position without pulling. The particular tinge of colour that Peaches and Nectarines acquire on the approach of ripeness should be observed, and in all cases of doubt the hand to be applied so as to grasp the fruit with gentle and equal pressure on five points of contact.

STOVE.

As the nights are now getting long and cold, it is advisable to put on a little fire heat, more for the purpose of assisting to ripen the succulent wood that has been made during the late dark summer than to promote growth. Every ray of light to be admitted freely with an abundance of air when the temperature exceeds 80°. See that every plant is free from insects, and keep the foliage of Ixoras and other such plants clean by washing them with a sponge and soapy water when necessary.

GREENHOUSE AND CONSERVATORY.

In a season such as we have lately experienced when, as *Punch* remarked, the sun has been playing hide-and-seek for the last three months, it is not to be expected that plants would be as fully matured as in ordinary seasons. All that we can now do under such circumstances is to expose them to all the light at our command and in situations where the lights can be entirely removed in every interval of fine weather. Azaleas to be secured in a dry house, to assist in setting their bloom. Tropæolums to be started, and no time to be lost in procuring and potting such Hyacinths, Tulips, and other such bulbs as may be required for forcing. Heliotropes, Verbenas, Scarlet Geraniums, and Roses required for decorative purposes to be progressively shifted, stopped, and trained, as they will be found useful until a late period of the year. Unless the weather becomes dry, Orange trees and other such hardwooded greenhouse plants, if at all large, will soon require housing, as the heavy rains have saturated them to excess, and a low night temperature will turn the foliage to a sickly yellow, which frequently remains on the plant through the winter. Before removing them to their winter quarters any that may require additional root-room to be shifted into fresh pots or tubs. Continue shifting Cinerarias, Chinese Primroses, Calceolarias, Humeas, and other such seedling plants into larger pots as they may require them.

PITS AND FRAMES.

Continue to pot off such cuttings as are rooted, place them in a close pit or frame for a few days until they have made fresh roots, when they should be removed to a sheltered place to harden. The Cucumbers in frames which it is intended to keep in bearing should be covered up when the nights are cold; the beds should also be newly lined.

W. Keane.

SIR JOSEPH PAXTON'S GARDEN IN 1860.

Having a pot-luck invitation to call in and see the honourable member for Coventry when I am in the way, and having also a great aversion to people bothering other people on the free-and-easy mood, I never see Sir Joseph unless I am downright obliged, and then only to seek a leaf out of his book on some such occasion as the present, when I am collecting the statistics of the falls and failings in the flower gardens, from the bad state of the weather exclusively—a subject, as I said before, which was suggested to me at a chance meeting by Sir William Hooker—for the comfort and consolation of the great mass of the people, who, when they thus learn that they are all in the same boat, will put the saddle on the right horse, give a last look to the boat, and mount for the pleasure of the thing.

Well, Sir Joseph's flower-beds are the fullest I have seen this season; but as it might seem like crowing on one's own middin to say aught about them, or about those in the Experimental, just at this crisis of the season, and as an account of the whole place will be sure to be acceptable gossip to 10,000 gardeners, and of some use and benefit to other classes of our readers, I thought I could do nothing better than give it from memory, without notes, especially as I could not get it in among my notes on the Crystal Palace. Compared to the size of the Crystal Palace estate, that of the honourable member for Coventry, on the summit of Sydenham, is what another honourable member on the other side would call a mere fleabite. But then it is in the very form of a rifled musket, with the butt end towards the north end of the Palace, and not more than a stone's throw from it. The house is an old, comfortable English mansion, and stands where the lock does on the stock; the garden front, the sloping lawn, the terrace, and the boundary in front, come in, bay fashion, where the trigger is, and the hand-holder. The breech of the barrel is that side of the pleasure-ground next the kitchen garden, and the mouth end is that garden itself. The part between the lock and the butt of the stock is so much out of an ancient forest, pierced through with winding walks and accompanying masses of evergreens and other shrubs. To say that all were highly artistic, or in good taste, would only raise the remark that little short of that could be expected. The house stands on the highest part of Sydenham Hill, and commands the same wide prospect as the Crystal Palace itself, looking over the archery-ground and the principal parts of the Crystal Palace gardens. There is a wide-paved verandah in front of the garden-entrance, the roof of which is covered with glass. The front of the verandah is open, and is supported by trellised pilasters, against which choice climbers are planted, and stone steps down to the walk in front. Under each of five pilasters is a raised circular bed by the side of the gravel-walk, just as the marble-base beds are round the crystal fountain inside the Palace. Here the climbers have a first start, ere their roots extend under the gravel-walk; and here, too, are fine masses of pure blue Hydrangeas blooming with unwonted luxuriance. Before these come into bloom, and after they are over, the gay furnishing plants of the season are used in hidden pots to keep up a constant succession of bloom in front of the "big hoose," as they would say at Balmoral. From this large, open verandah to the left, extends a narrow verandah, 10 feet or 12 feet wide, and 18 yards long, also covered with glass, and is supported and furnished in front as the first, with a large flower-vase in the centre of each opening in front, filled with mixed flowers planted out. The vases are white, and on red-marble plinths. Opposite this side-verandah to the right, from the front door, is a south wing to the house. As the covered verandahs cannot thus extend on both sides of the entrance, a huge slab of looking-glass against the "wing" makes up the difference by reflection. For artistic effect this was the most called-for instance, to produce the "match pair" by reflection, that I remember to have seen anywhere.

Between the front and side-verandahs stands one of the oldest-planted *Wistaria sinensis* in England. It extends twenty yards to the right, and twenty yards to the left, covering so much of these verandahs, and of that south wing of the house, and measures at the surface of the ground just thirty-six inches to a fraction; for I had a surveying commissioner to give all measurements, and he was proof to the quarter of an inch in a bed. And against the back wall of the side-verandah, and beyond that noble or most noble Wistaria, are Camellias, gay-flowering plants for summer, and a host of fine climbers, which, like the Camellias, will stand the frost. Among them are *Stauntonia latifolia*, *Clematis lanuginosa* in splendid bloom, other Clematis, *Tecoma radicans major*, *Eugenia apiculata* in dense masses of Myrtle-bloom, Cherry-pie in plenty for summer sweet, Passion-Flowers, *Ceanothus rigidus*, *Cotoneaster Simmonsii*—quite new to me, a beautiful wall-plant, with the habit of *microphylla*, but different in look and leaf, and very different in fruit; *Jasminum nudiflorum*, *Forsythia suspensa*, one of the most curious in botany of all Fortune's plants from China, and others of more common run. In front of this side-verandah, and between it and the walk, is a green sloping bank, and by a bend in the walk it is widest in the middle and narrows to both ends; but as everything here must be first-rate artistic, this shape is thrown in a chain pattern, with small circular beds inside the chain, the centre bed being the largest, and each bed on either side of the centre diminishing in diameter to both ends. The chain is eighteen inches wide, and filled with one row of *Purple King* Verbena in front, and one row of *Tropæolum elegans* behind it. You never saw a better run all round anything before, and with a third row in front of the purple of something variegated would make an excellent beginning to a ribbon-border. Yards and yards are in this chain to prove the said Verbena and that *elegans* to be fit and proper lines in ribbons; but, of course, they would need good handling. The centre bed in the pattern within that chain is of *Alma* variegated Geranium, *Sidonia*, and *Golden Chain*—all gems, and all the beds on either side are gems also in pairs; the one on the right corresponding to that on the left, and diminishing in size to both ends, to suit the run of the ground. Beyond this, and still on the left hand side, is a long sloping bank of flowers 38 yards from end to end, and, perhaps, 20 feet across in the widest part, for it was guessed only, as no one with a grain of sense would stalk across such a mass of beauty.

The first 8 feet in depth at the back of this slope were of Scarlet Geraniums in one continued mass of bloom, the place being much sheltered from "all the airts the wind can blaw," except that facing the meridian. Then three feet of *Calceolaria integrifolia*, also very good; then another breadth of Scarlet Geranium; another of large upright plants of *Mangles' Variegated;* and the last 18 inches at the bottom of the slope, and next the grass, were of the best telling mass of *Lobelia speciosa* I ever saw. The outline is both undulated by Nature, as it were, and curved artificially, which must have heightened the effect considerably. It is astonishing how a few kinds of common flowers can give such effect; but the secret is in the outline, and in the planting of the exact quantity of each simple colour.

Beyond this bank is a wooded way to the kitchen garden. In front of the main walk which passes by the front door by these verandahs and flowering banks, is a sloping lawn free from beds, except top and bottom. At the top are corresponding beds to match the mass of blue Hydrangea and vases aforesaid, three circles 10 feet across, and four large vases in the line of the beds. The beds have each a tall, branching Humea in the centre, five rows of *Palace Scarlet*, two rows of *Flower of the Day*, and blue Lobelia outside. All these beds, banks, and vases were in their prime when I saw them. At the bottom of the lawn are two huge beds of old evergreens, chiefly Arbutus, from thirty-five to forty feet in diameter. One is on the left, the other to the right of the centre view from the house across the lawn; and in the middle between them is a low bed of Rhododendrons.

Round these three great masses of evergreens stands the rosery in curved lines; and below all that, and out of sight from the garden-front of the house, is a terrace from one end of the garden to the other, with a Crystal Palace summer-house at each end of the terrace walk. On the lawn side of the terrace, is a row of *Araucaria imbricata*, and standard Rhododendrons, just as standards of it should be. They are planted 20 feet apart, or 40 feet between the Araucarias. From this terrace one looks all over the Crystal Palace grounds; the highest part of the rough, rocky ground of the Palace Gardens making the foreground to the view to this terrace, and that part is

planted on the natural plan of the district, as it were. The whole face is massed with double Gorse, among which bunches of *Ribes sanguinea* rise here and there, and masses of white Broom in other parts—that is to say, a wild-like upper moorland covered with scrubby brushwood, as by chance, and looking as the outer edges of a wilderness, yet contrived and planted on purpose so as as to give the right idea of the boundary-line of the Crystal Palace grounds in that direction, and a suitable foreground to the views from the terrace of Sir Joseph Paxton, with the actual boundary concealed between the two.

In the kitchen garden the great feature is the Portable Houses for the Million. Several new ones have been erected since I was there last year, and some of the details of construction have been since simplified. The whole is in glass, and no boarding, same as lean-tos against walls, and others span-roofed, with ample walks down the centre, and borders on each side raised eighteen inches above the level of the walks, having stout boards on edge to the sides of the walks to keep up the soil. The hot-water pipes, four-inch ones, are in some up and down each side of the walk, and in others along the centre of the borders, in single runs. They are worked by portable small boilers, and the crops are splendid, without a single failure that I could see. In some of them pot plants are sunk a little in the borders, as with Mr. Rivers; but in the greater number the trees are planted out in the borders, and they say the latter give most fruit with less trouble and expense; and I should say, from my own view of orchard-houses, that where Strawberries and Kidney Beans are to be forced from Christmas to June, and where bedding plants are a great object, as they are here, the two systems should go hand-in-glove, if only with two such houses; the one to be with planted-out trees, the other with the trees in pots.

Taking a comprehensive view of these cheap structures, we must allow there are two classes of people to manage them. The one class consists of amateurs who must and will have their own fingers in the pie, morning, noon, and night, when they are at home, or night and morning when they must be away for the rest of the day. Pot culture of fruit trees gives the greatest zest to most of that class, and Mr. Rivers is their prophet, priest, and king. He can fortell events in that way. He will rule by the long or short-rod system, by the coil or spur, or spur them on without the rod in pickle, and he can bless them with no ends of sorts, and kinds, and sizes of plants, to carry on the good work, and the self-imposed labour.

But there is another class—a widely different class, and very differently situated—a class of gardeners who have a great deal to do and very little to do it with. They must foresee events for themselves, and rule for them or against them as Britannia rules the waves—now up on the crest of one, and then down in the hollow of another, and risk their fame and their characters in the next plunge, and there is no one to bless them or do a single turn for them out of season. An orchard-house full of all kinds of pot plants is a heavy burden and a sad task to this class; and any movement to lessen the strain on them deserves our best attention. Then here it is, as I suspected from the first start. The two ways are in perfect working order in Sir Joseph Paxton's garden at Sydenham; and I made diligent inquiries as to the actual expenses of each, and how the one rated with the other. It would be no criterion to give the actual cost; but I was told, without a moment's hesitation, that one house in which the trees were planted out cost only one-eighth of the expense in time and management of that of a similar-sized house in which all the trees were in pots; and, moreover, the crop in the first would fetch, in Covent Garden Market, just twice as much money as that from the pots. This statement was made to me by a good practical gardener, who had seen the work done from first to last, but had nothing to do with it himself. I purposely took that precaution, and all the parties concerned were aware of the end and aim of my notes.

But there is yet one more system in full play in one of these portable houses, an intermediate mode between the other two—between pots and all pots, and planting out and no pots. In this house, a span one, Vines are planted out all round the sides at the bottom of the glass. The glass in these houses comes down to the very surface of the earth on both sides and at each end. These Vines are not far apart—perhaps four feet or less. The rods run up this year to the ridge; the next year one-half, or rather one-third, of the rods will be fruited on the rafters—perhaps on every alternate rafter; the rest being drawn on to the border, and fixed or coiled to stakes, and so fruited as if they were in pots—pot-pillars, in fact. That gives as much light from the glass as will do for other fruit-plants in pots placed along these borders with the pillar Vines, and before the new rods from the bottom eyes of the bent ones for fruiting next year have time to overshadow the crop. Sir Joseph prefers his Grapes all from single rods and no spurring; and a young vinery on that system, and nineteen yards in length, all of *Black Hamburghs*, is the finest and most regularly-sized bunches and berries I have seen anywhere, and I have seen a good many in my day. One house that is occupied all the winter and spring with bedding plants is full of Melons in boxes on one side, and Cucumbers in pots and boxes on the other, the pipes going more or less the whole summer.

Another house for forcing *Kidney Beans* has paid the whole cost of erection the first season at the rate the crop would fetch in Covent Garden, the quantity gathered and the market price being regularly kept through the season. The Beans were in boxes; but the secret is the glass coming down to the soil all round, and the power of keeping the temperature to any given figure. You could hardly believe that one of my stamp could get a sudden surprise in one of these houses, but no use would come of denying the fact. It was a long vinery, with the border made on the top of the garden surface, and, of course, had a front wall; then, inside there was a wide shelf all along the front, and five or more feet wide to stand pots on. The whole of that stage from end to end was covered with Strawberry plants in No. 60-pots, perhaps to the tune of a thousand or more. What on earth could they be doing or thinking of about forcing Strawberries towards the end of August? They were not forcing Strawberries, but making up for lost time for want of sun and warmth outside. Nine-tenths of the Strawberry plants that will bloom early next February in England and Wales, and some parts in the south of Scotland, and in most parts of Ireland, will go blind as moles and bats for want of being properly developed this autumn. Mark the prediction, and mark also how it is guarded against in this instance—the first of the kind, I believe, on record. The runners were put in small pots in the usual way; and when the pots were full of roots they were removed indoors, placed close up to the front glass, liberally supplied with air and water in a dry atmosphere. They were up and doing by the time I saw them, were to get into the fruiting-pots shortly, and, after taking good hold, would be turned out of doors in a dry sheltered situation to fill and finish off before winter. The whole crop for next forcing has gone through that process; and if any of them gets blind, even of one eye, I shall hear of it. But what would you say to rearing the most delicate Water Cress in successive crops the year round, above the surface of our planet, between the earth and the firmament? Well, that also is done there in a comely and economical way in a bed 12 yards long, 4 yards wide, and 18 inches in depth. It is divided into two parts in the centre, so as to have one half in bearing, the other to come on in succession—so as to have it fresh and fresh, and as pure as plentiful all the year round.

To eat common-got Water Cress, as some do, does not

produce such distressing deaths as strychnine, it is true, but it lays open the region of the inner man and woman to the horrors of one of two things—that of being able to digest the raw eggs of water insects and the green livers of creeping things, or to undergo the awful reality of hatching the one, and rearing the other, for the certain end of cutting the silver cord at last. The way adopted there, to avoid all that, was to make a thick bed, or layer of puddled clay, on the surface of a dry piece of ground, as for the bottom of a canal, to raise a puddle bank on each side and across both ends, the side and end-banks to slope inwards, and to be covered with a layer of clean sand to keep the clay from cracking; the outsides are held up perpendicularly with strong one-inch-and-a-half boards. A tap at one end and a waste pipe in the other, or in it, and in the centre division, will soon fill or empty either or both beds with a few inches deep of water, in which, with a little mixture of pure sandy earth, Water Cress will grow and keep in perfection for a long time.

The beds were then both in crop, and such as would make one's teeth water. Both were awned to save the true colour of the herb, thus—a row of pots the size of Sea-kale pots on each side on the curb or bank of the bed, and tiffany lights across, resting on the pots with a space of 1 foot to 15 inches, or the depths of the pots, to give a draught of pure hill air over the whole. A bed made to that model, and filled six inches deep of Rhododendron-peat, after turning the tap for awhile, would do to get Cranberries by the bushel; or, if you like it better, leave the tap going night and day on a half-quarter run, and fill the whole bed with marsh plants of the greatest beauty from all the temperate regions of the earth or if you go near the tropic for them put one run of single pipe down the muddy hollow, and another run on each bank, and cover it on the span-roof principle of the Houses for the Million, and you will soon be talked about as if you had an Experimental Garden at your back. D. Beaton.

LIQUID MANURE TO CAMELLIAS IN TUBS.

I have two large Camellias under my care. They are growing in tubs which are three feet in diameter. The tubs are full of roots—in fact, a complete mass of roots, as far as I can ascertain. The plants are nine feet and a half through, and as much high; circumference of the stem fifteen inches. Now what I want to know is, if I may give them *liquid manure*. We have plenty here of two kinds—one simple drainage from a large dunghill, the other from the cow-houses, piggeries, laundry, &c., with a small quantity of the ammoniacal liquor from the gas works in it. Which do you think I may give them? I wanted my employer to have them planted out of the tubs in the conservatory, but some gentlemen told him we might give them larger tubs, but not unlimited root-room. So between the two they have got neither.—W. H.

[We would pick off a little of the surface soil, and resurface with fresh. When the buds were swelling freely, we would use the manure water, but would prefer that from the dunghill, and be sure to give that weak enough. Let the water at first be but little more than coloured. If you use it strong you will be apt to cause the buds to fall. We have known Camellias do well in the same pots and tubs for a dozen years.]

CULTURE OF MANDEVILLA SUAVEOLENS.

Can you give me any hints as to the proper treatment of *Mandevilla suaveolens?* I have had a plant for two or three years, but cannot induce it to flower. In Devonshire we used to flower it in the open ground in summer, and I tried it here (Wilts). The plant grew luxuriantly, but refused to put forth a single bloom. This year I kept it in a large pot trained to a wire in a greenhouse, but with as little succees. Ought it to be pruned? If so, how?—Rector.

[The Mandevilla will bloom freely on the wood made this summer, proceeding from buds on well-ripened wood of last year. We had a fine plant ourselves, allowed to twine round an iron pillar, and then spread somewhat wildly over the part of the roof of a conservatory, and with roughish pruning it bloomed profusely. Ere long, however, we shall have to cut down the plant to within a foot or so of the ground. It has grasped the pillar so tightly, and the iron being the stronger material of the two, that many parts of the twistings are already dead. If, when thus cut down, the old stem breaks freely, we shall remove ultimately all the shoots but one, and allow that to grow as strong as it likes; refraining from watering in the autumn, that the shoot may be matured as well as strong. Next season we would cut that shoot back to within a few feet above the height of the pillar, and most probably disbud the buds on the shoots four or five feet from the ground, as most likely there would not be light enough for the flowers to expand freely. Next season we would allow the main shoot to grow on again, and also the lower buds to grow. Many of these side-shoots will bloom in summer and autumn. If very straggling we would nip the points out, and curtail water again in autumn and winter. In winter and spring prune back these side-shoots to a bud or two, and the leading-shoot, according to its strength and the room to be given, to several feet above where we cut back last season. Treat your plant thus grown almost exactly as you would do a Vine on the spur system of pruning, and there will be no lack of abundance of flowers. When the young wood is allowed to grow in bunches, and no regular system of pruning, there is apt to be more growth than bloom, and the flowers come irregularly. On the above plan, based on experience and observation of the finest plants we have seen, we do not see why in any conservatory the flowers should not be as regular as Grape flowers on spur-pruned Vines. Bear in mind, that every bud on a piece of well-ripened wood of this summer's growth is capable of producing a shoot next season that will bear flowers. One great advantage of the method of spurring back every season to a bud or two is, that in a few years the shoots do not come so strong or long, but much more compact and fuller of flowers; so that a long stem so filled with these leafless spurs in winter and spring will look like a huge garland of the purest and sweetest-scented white in the autumn months. Our correspondent may thus see how he should treat his plant now, and how prune in the winter. Just as on the Vine, long well-ripened shoots will send out blooming-shoots from all its best buds; but the spurring system is the simplest, and involves least trouble. We think we may safely state, that in no gardening work has the *rationale* of pruning plants been given with anything like the clearness as has been done in many such cases in this work.

We don't think that the Mandevilla would do in the climate of London out of doors. We some years ago saw a splendid plant at Shrubland on the conservative wall; but then it was covered with glass, so that the wall was a conservatory in winter. We have no doubt that in many places in Devonshire it would flourish against the warmest walls of houses as well as the Myrtle. In such cases we would train the shoots two feet apart, spur them, and perform the pruning about April or May every year. The spray would partially protect the plant in winter. In pruning, leave one, two, or more buds, according to the room left for the shortish shoots that will be sure to come when the plant is well established. In planting let the border, pot, or box be well drained; and use sandy loam, with a portion of leaf mould and peat earth. When coming into bloom enrich with weak manure waterings. The soil should be dryish, not dry, in winter.]

THE SCIENCE OF GARDENING.

(*Continued from page* 316.)

During the ripening process, both of fruit and seed, all plants give out more carbonic acid and less oxygen than during the earlier stages of their growth, and thus is given a reason why room plants should be removed when once past their meridian vigour.

Now, to effect these changes, to ripen perfectly—that is, to generate its best proportions of sugar and aroma, every plant requires a certain amount of sap, light, heat, air, and moisture; and how these are best secured to them, so far as training and the atmosphere around them are concerned, may be here appropriately considered. These circumstances, so far as the roots, flowers, and leaves were also concerned, have been examined in previous chapters.

The more rapidly, and, consequently, the greater the amount of sap poured into the branches, the greater surface of leaf is required for its elaboration; and, as the plant has power given

it of increasing most freely, and even at the expense of others, those organs which are most necessary, the leaves of such abundantly supplied branches are increased both in number and size, whilst the blossom is proportionately diminished in number, or is obliterated entirely. A plant propels its sap with greatest force perpendicularly; so much so, that the sap rising in a Vine branch growing in a right line from the root with a force capable of sustaining a column of mercury twenty-eight inches high, will, if the branch be bent down to a right angle, support barely twenty-three inches; and if bent a few degrees below the horizontal, the column sustained will not be more than twenty-one inches. This is the reason why, at such angles, gardeners find the trained branches of their wall trees rendered more productive of blossoms, and furnished with a smaller surface of leaves. A similar effect is produced by training a branch in a waving form, for two-thirds of its length are placed horizontally. Other modes of interrupting the rapid flow of the sap by checking its return have been previously noticed; among which modes are ligatures and wounds round the bark.

Light and heat are so combined, and so equally essential for the ripening of fruit, that they may be considered conjointly. They are both diminished in ungenial summers; and in such, fruit ripens indifferently, or not at all, being, if it does ripen, deficient in colour as well as flavour. In our latitudes, however, warmth is more deficient than light for the maturing of exotic plants; therefore, by securing to them a higher temperature, we have the Peach, the Melon, the Mango, and the Pine Apple as richly-flavoured and even superior in excellence to that which they attain in their native climes.

It must be remembered, in considering this branch of our subject, that all cooling is occasioned either by the heat being conducted from a body by a colder, which is in contact with it, or by radiating from the body cooled, though circumstances accelerate or retard the radiation; and whatever checks the radiation of heat from a body keeps it warmer. For example,—a thermometer placed upon a grass plat, exposed to a clear sky, fell to 35°; but another thermometer, within a few yards of the preceding, but with the radiation of the rays of heat from the grass checked by no other covering than a cambric pocket-handkerchief, declined no lower than 42°. No difference of result occurs, whether the radiating surface be parallel or perpendicular to the horizon; for when the mercury in a thermometer, hung against an openly exposed wall, fell to 38°, another thermometer against the same wall, but beneath a web of gauze stretched tightly at a few inches distance, indicated a temperature of 43°.

These results explain the beneficial operation of apparently such slight shelter to our wall fruit when in blossom. A sheet of canvass, or of netting, prevents the direct radiation of heat from the wall—the cooling goes on more slowly, and is not reduced to that of the exterior air at night before the return of day begins to re-elevate the external temperature.

The colder the body surrounding another body, the more rapid the radiation from the latter; for it is a law of heat that it has a constant tendency to be diffused equally, and the greater the diversity of temperature between two bodies in contact with each other, the greater is the rapidity with which the progress towards equilibrium goes on. This is one reason why a temperature of 32° with a brisk wind attending it, will injure plants to a far greater extent than a temperature many degrees lower with a still atmosphere; but it is aided by the operation of another law of heat—viz., that aëriform bodies convey it from a cooling body, as a wall or a tree, by an actual change in the situation of their own particles. That portion of the air which is nearest to the body cooling is expanded, and becoming specifically lighter, ascends, and is replaced by a colder portion. This, in its turn becomes heated and dilated, and gives place to another colder portion; and thus the process goes on until the body cooling is reduced to the same temperature as the air. In a still atmosphere this goes on slowly, the air in contact with the wall and tree rises very gradually as it imbibes warmth from them; but if there be a brisk wind, a constant current of air at the lowest temperature then occurring is brought in constant contact with them, and the cooling is rapid in accordance with the law of equilibrium just noticed. A shelter of netting, or even the sprays of evergreens are of the greatest service in preventing the sweeping contact of cold air at such times.

It is not altogether immaterial of what substance netting is formed. Worsted is to be preferred, not only because it is the most durable, but because it is the best preventive of a wall's cooling. We have found the thermometer under a hemp net sink during the night from two to four degrees lower than that under a net of worsted, the meshes being small and of equal size in both nets. This can only be because worsted is a known worse conductor of heat than hemp, and, not absorbing moisture so easily, is not so liable to the cold always produced by its drying.

Snow is a protection to plants for the three foregoing reasons—it prevents heat radiating from them—protects them from the chilling blasts—and is one of the worst conductors of heat. We have never known the surface of the earth below a covering of snow colder than 32°, even when the temperature of the air above has been 28°. A similar protection, though less effectual, is afforded by straw.

Strange as it may appear, yet it is nevertheless true, that a shelter is more beneficial in preserving the temperature of trees, when from three to six inches from them, than when in immediate contact with their surfaces. When a woollen net was suspended four inches from the wall, on which a Peach tree was trained, the thermometer fell very slowly, and the lowest degree it reached was 38°; when the same screen was twelve inches off, it fell to 34°; and when drawn tightly over the tree, it barely kept above 32°, the temperature of the exterior air. When at twelve inches from the wall, it permitted the too free circulation of the air; and when in immediate contact with the polished bark of the Peach, perhaps another law of cooling came into operation. That law is that polished surfaces radiate heat slowest. Thus, if two glass bottles, equal in size and thickness of glass, and of the same shape, be filled with warm water, and one of the bottles be covered with an envelope of fine muslin, this bottle will give out heat to the surrounding air with much greater rapidity than the other bottle: so that in a given time the bottle with the envelope will be found colder than the one which has no covering.

In the uniformity of temperature being sustained by the equivalent radiation and absorption of the bodies at the surface of the earth, we find the solution of many interesting natural phenomena. The production of dew and frost are to be thus accounted for. In the absence of the sun, the surface of the earth losing, by radiation, a great quantity of heat, should have its temperature considerably lowered, were it not, that the canopy of clouds which generally lie above it radiate in return, and thus maintain the temperature almost the same. If then the clouds be absent, all the heat radiated by the earth is lost in the planetary space, and the temperature of its surface brought many degrees below that of the atmosphere. The stratum of air which lies in contact with the surface of the ground is then cooled, by contact, and a portion of the watery vapour, which it had possessed in its elastic form, is deposited as liquid water. If the temperature of the air be itself low, and the night very clear, the cooling may proceed so far that the drops of dew at the moment of their deposition shall be frozen, and thus form frost. The truth of this explanation is demonstrated by the fact, that it is only on the surfaces of good radiators, and during clear starlit nights, that the dew or frost is found. If a plate of polished metal be laid on the centre of a rough board, and exposed to the air of a frosty night, the rough surface will be found in the morning covered with copious frost; but on the bright metal no trace will be deposited. It is thus, that by lightly covering a thin layer of water with straw to increase the radiating power, a sheet of ice may be obtained in a single night between the tropics, where the actual temperature of the air may have continued far above the freezing-point. That the cooling effect is produced by the loss of heat in its radiant form, and not by the contact or diffusion of the particles of the air, may be proved by the interposition of a screen of any substance which intercepts the passage of radiant heat, when the deposition of the dew or frost instantly ceases, and the surface cools no more.—(*Kane's Elements of Chemistry.*)

"And mark here a beautiful adaptation," says Professor Johnston. "Different substances are endowed with the property of radiating their heat, and of thus becoming cool with different degrees of rapidity; and those substances which in the air become cool first also attract first, and most abundantly, the particles of falling dew. Thus in the cool of a summer's evening the grass plat is wet, while the gravel walk is dry; and the thirsty pasture and every green leaf are drinking in the descending moisture, while the naked land and the barren highway are still unconscious of its fall.

"How beautiful is the contrivance by which water is thus evaporated or distilled as it were into the atmosphere—largely

perhaps from some particular spots—then diffused equably through the wide and restless air, and afterwards precipitated again in refreshing showers or in long mysterious dews! But how much more beautiful the contrivance, I might almost say the instinctive tendency, by which the dew selects the objects on which it delights to fall; descending first on every living plant, copiously ministering to the wants of each, and expending its superfluity only on the unproductive waste."—(*Agricultural Chemistry.*)

Shelters such as we have mentioned, or the slighter agents, sprays of evergreens, placed before the branches of wall-trees, or other plants, as already noticed, operate beneficially in another way—checking the rapid passage of the air over them—such passage is detrimental in proportion to its rapidity, for the more rapid it is, the greater is the amount of evaporation, and, consequently, of cold produced. Mr. Daniell says, "That a surface which exhales 100 parts of moisture when the air is calm, exhales 125 parts when exposed to a moderate breeze, and 150 parts when the wind is high. During all high winds, but especially when blowing from points varying between the east and the south—for they are the driest in this country—the gardener will always find shelters beneficial to his plants whether in blossom or with fruit in its first stages of growth, for these winds cause an evaporation much exceeding in amount the supply of moisture afforded by the roots." In March such shelters are much required, for the winds are then violent and dry even to a proverb; but it is during the days of its successor, April, that sets in the only periodical wind known in this island. It comes intermittingly, and with variable force, from points ranging from E. to N.E., and is one of the most blighting winds we have. It continues until about the end of the second week in May, though often until its close; and it is a good plan to have the trees during the whole period, by day as well as by night, protected. This periodical wind is occasioned, probably, by Sweden and Norway remaining covered with snow, whilst England is some 20° or more warmer; an upper current of warm air is consequently flowing hence to those countries, whilst a cold undercurrent is rushing hither to supply its place. This wind, and its consequent cold weather, is so regular in its appearance, that in Hampshire and some other parts of England the peasantry speak of it as "the Blackthorn winter"—that bush being in blossom during a part of its continuance.

Colour has very considerable influence over a body's power of absorbing heat. If a thermometer on a hot summer's day be exposed to the sun, it will indicate a temperature of about 100°; but if the bulb be blackened with Indian ink, or the smoke of a candle, it will rise from 10° to 20° higher. The reason for this is that the polished surface of the glass reflects some of the sun's rays, but the blackened surface absorbs them all. Blue absorbs all but the blue rays; red all but the red; green and yellow all but those of their own name; and white reflects all the rays. The lightest coloured rays are the most heating; therefore, light-coloured walls, but especially white, are the worst for fruit trees. The thermometer against a wall rendered black by coal tar rises 5° higher in the sunshine than the same instrument suspended against a red brick structure of the same thickness; nor will it cool lower at night, though its radiating power is increased by the increased darkness of its colour, if a proper screen be then employed. The elevation of the temperature of a dark-coloured fruit compared with that of a lighter coloured of the same kind is often remarkable, as in the instance of the Muscle Plum and Green Gage growing on standard trees. But there are other causes than colour for fruit often remaining of a cool temperature in the hottest weather, and among these causes is their covering. Every one must have noticed the delicious coolness of the Peach's flesh compared with that of the Nectarine grown on the same wall and in the same bright sunshine; and the reason of this is that the dense woolly cuticle of the first, like all other downy coverings, is one of the worst conductors of heat. Similar coverings are found on Mexican and Cretan plants which have to endure exposure to a torrid temperature.—J.

(*To be continued.*)

Large Elm Tree.—The largest tree in the State, it is said, is an American Elm, on the Hubbard farm, in North Andover. It is 110 feet in height, and its branches spread 100 feet in width, and its girth, 8 feet from the ground, is 22 1-2 feet. A Currant bush, which has taken root in a notch about 15 feet from the ground, can be recollected for nearly half a century.—(*Boston Cultivator.*)

DESTROYING CABBAGE BLIGHT.

Under date June 16th, 1860, my Australian correspondent writes as follows:—"The Gishurst Compound kills the Cabbage blight effectually; but whether it may remain permanently useful cannot yet be determined. The difficulty will be to get at the vermin, which secrete themselves in the innermost recesses of the plants and leaf-buds."

Any further information received I shall gladly communicate. —James Thomson, *Kilmarnock.*

HARDY ORCHIDEOUS PLANTS.

If any enterprising cultivator is desirous of making himself famous in the gardening world he should try to cultivate these elegant plants: if successful he would be doing a great service to his brethren by making known the means he has employed to succeed. Many have tried and failed, I verily believe, for want of perseverance. The means hitherto used for most of the British kinds has been to take them up with balls when in flower, and transplant them to the flower-border, where they soon die; or to put them in pots, and keep them in a cold frame, where they languish for a year or two, and then appear no more. On the other hand, some growers have been successful in growing some North American species very well. I remember my friend, Mr. Wm. Barnes, now a nurserymen at Peckham, exhibiting, some years ago, a large pot of *Cypripedium spectabilis* as well grown as need to be wished, with nearly twenty fine blossoms expanded at once. This instance shows that hardy Orchids can be grown if only due pains be taken. I remember, also, when I was a youth, obtaining a large plant of our English Lady's Slipper, gathered near Settle, in Yorkshire; it had upwards of a score of what is technically called "rises" on it—that is, shoots; and every shoot I made into a plant by division, and every one grew and flourished as long as I had the care of them. The secret of this success arose from the fact, that I took heed to plant the divisions in a similar soil to that in which the plant had grown in its native habitat, and planting them also in a similar situation to that in which they grew wild. This method must be adopted with every species in order to succeed in growing and keeping them. But then, again, they must be removed when perfectly dormant; for their fleshy, tuberous, or fibrous roots are so fragile when in a state of excitement, that to move them then is almost certain and early destruction. It may be asked, How are we to find them when no leaves are visible to show where the roots are? In answer I say, Look for them when in flower or foliage; mark the place securely, by driving a stake by their side, and then search for and remove them when they are in a dormant state. They are well worth this extra trouble.

Many of the species seed freely. Now, if the seed is gathered when ripe, and sown in a similar soil and situation to that where the parent plant grows, the seedlings will thrive well also. This is not an untried plan, for I have raised them so, and bloomed them too when they had acquired the proper age and strength.

By these two methods—namely, collecting the roots when at rest, and packing them in moist soil, and by gathering the ripe seeds, a great number of foreign hardy Orchids might be sent home by collectors; but then the collector should also send us some account of the localities each species was found in, and what sort of soil the plants grew in. Some are found on dry, chalky hills; others in loamy pastures; some in low thickets, and others under lofty trees in forest land; some in strong soil, others among decayed leaf mould, and others in sandy peat.

Now, if we receive plants from these different soils and localities of growth, and subject them to one uniform soil, is it likely that they will thrive and bloom well? Every experienced cultivator of any kind of plants would immediately answer in the negative. What, then? Are we to give up the attempt to grow these singular and beautiful plants? I say, Most certainly not. Let us try again and again, till success crowns our efforts. A partial success has been achieved, as I have mentioned above, and it only needs a determined spirit to make that success more complete. But, says the reader, "Though I am quite willing, nay, desirous to try my hand at growing them, how am I to proceed, and where am I to procure the plants? Is there any work on this particular branch of horticulture?" In answer to these reasonable queries I reply, that in the following pages I will give the best instruction I can on their culture, giving a description of the different soils they require, the season and mode of potting or planting, watering, shelter, summer and winter treatment, diseases,

insects, and a grouped list. Then, as to where they may be procured, the answer is, by collecting the British species, and by purchasing exotic species of nurserymen. If the demand for them should be great, enterprising dealers would be ready enough to send out orders to collectors, in Europe and America, to look out for and send home both roots and seeds; and, lastly, the cultural information about these plants is exceedingly meagre and scattered through large botanical works, not likely to fall into the hands of amateurs. There is no work or portion of a work on the subject that I know of, excepting Sowerby's "English Botany," and the "Botanical Magazine."

The Soils, or Composts.—*Chalky Loam.*—This can only be obtained from places where chalk forms the substratum. The top spit will have sufficient chalk amongst it to serve the purpose. If that sort of soil is at a considerable distance, some lumps of chalk may be procured, and some fibry loam, the chalk be broken into small pieces and well mixed with the loam. Let it lay up in a heap for twelve months, and let be frequently turned over to incorporate them well together.

Loam.—Any pasture-ground will furnish suitable loam for the kinds requiring it. A thin spit from the surface, laid up and turned over till it is mellow, will suit such species as are found in meadow pastures. Some few species are found in boggy marshes: hence such a soil should be obtained and laid up in a shady place till it is wanted.

Loam and Sandy Peat in equal quantities will be wanted for a large number of species. Let a sufficient quantity be procured and mixed together, and frequently turned to become amalgamated, mellowed, and fit for use.

Loam, Sandy Peat, and Leaf Mould.—This compost will be found necessary for most of the North American species, and also for such as are found in English woods, and for some European species. I have this compost prepared, mixed together and turned over for a few months to mellow.

Excepting the boggy peat, which I think is best to be kept in a shady place, all the other soils and composts should be placed in an open part of the garden fully exposed to the sun, which has a very beneficial effect upon them. There cannot be a greater mistake made than that of placing soils for delicate plants under trees, or behind a wall on the north side. Air and light are great mollifiers of soils; and the frequent turnings over of composts have the beneficial effect of exposing every particle of the soil to the air, heat, and light. I cannot press this part of the subject too strongly. I believe great mischief has been done to plants by using soils that have been laid up in improper places. Let the composts, then, be placed on a plot of ground fully exposed to the beneficial effects of the elements. T. Appleby.

(*To be continued.*)

MEETING of the ENTOMOLOGICAL SOCIETY.

The August Meeting of the Entomological Society was presided over by J. W. Douglas, Esq., the President, when a considerable number of donations to the Society's library were announced, including the extensive series of Catalogues published by the Trustees of the British Museum, and the publications of the Royal and Linnæan Societies, the Royal Physical Society of Edinburgh, the Stettin Entomological Society, a new volume of Mr. Stainton's fine work on the Tineidæ, new parts of Mr. Waterhouse's Catalogue of British Coleoptera, and Mr. Hewitson's published work on exotic Butterflies.

The President exhibited specimens of the rare and remarkable little Moth, *Stathmopoda pedella*, some of them being set so as to exhibit the peculiar manner in which the insect erects its legs in repose; also a specimen of the rare Beetle *Phloitrya rufipes* from rotten Oak at Leatherhead.

Mr. F. Bond exhibited specimens of a new British species of Trochilum, taken at Torquay by Mr. King, who had brought a living specimen to town in order to prove its genuine capture in this country (which had been gratuitously questioned). The species agreed with specimens of *T. philanthiforme*, received from Spain by Mr. J. R. Hind, the celebrated astronomer. Four specimens of somewhat smaller size and rather darker in colour had also been taken by Mr. King at the Land's End on the last day in July.

Mr. Westwood exhibited specimens of the larvæ and pupæ of the Swallow-tailed Butterfly, reared by Dr. Verloren; and which disproved the statement which had been made—that the darker or lighter colour of the chrysalis indicated the sex of the future Butterfly.

Mr. Ianson exhibited several new British Beetles of small size, captured by Mr. Turner at Rannock, in Perthshire, including a new British genus of Curculionidæ, *Brachonyx indigena*, taken on the young shoots of the Fir. Several other new British species of Coleoptera, heretofore confounded with other species, were also exhibited by Mr. G. R. Waterhouse, including species of the genera Cychramus, Trox, Clutorhynchus, and Crioceris.

Mr. Scott exhibited various rare Coleoptera and Lepidoptera from different localities, recently captured. Others, chiefly Microlepidoptera, were also exhibited by Messrs. Mitford and Miller.

Mr. F. Walker exhibited a remarkable variety of the common Butterfly, *Hipparchia Megœra*, captured in Guernsey.

Mr. Tegetmeier announced that, after many discouragements, he had succeeded in obtaining a thriving and populous stock of Ligurian Bees (*Apis Ligustica* of Spinola). He also described some experiments which he had recently made, tending to prove that interbreeding does not occur in the common hive Bee, and consequently that that species does not afford an instance of purity of breed being preserved without cross-breeding from other communities. Having found that the male Bees will freely enter into any hive at the mouth of which they may happen to be placed, he powdered a number of the males as they left one of his hives with flour; and he observed that at least one-third of these whitened individuals on returning from their flight entered other hives. He also referred to Siebold's experiments with reference to the breeding of Bees from unimpregnated individuals, in which case only males had been produced.

Mr. Scott read descriptions of four new British species of Microlepidoptera belonging to the genus Coleophora, the larvæ of which live in cases. The new species live upon the Oak, Nut, Melilotus, and Artemisia.

Mr. Westwood read a memoir communicated by Dr. Verloren on the effects of periodicity and temperature upon the development of insects, especially *Sphinx Ligustri*, a species which had been employed by the late Mr. Newport in a valuable series of observations published in the "Transactions" of the Royal Society. Dr. Verloren had found that in this insect the results were similar to those obtained by M. Vilmorin in his experiments upon plants published in the "Comptes Rendus" for 1859.

A new part of the Society's "Transactions" was announced as ready for publication.

CUTTING DOWN GERANIUMS—ROSE-TREE ROOTS UNDER PAVEMENT.

"A Constant Reader of The Cottage Gardener" would be greatly obliged for an opinion on the following subjects:—

1. Whether it is better, in a good greenhouse where there are all the means and appliances for keeping plants, to cut down old plants of bedding Geraniums at taking-up time, or to pot them just as they are, with their shoots untouched? The above query is meant to apply to the variegated-leaved varieties as well as the green-leaved sorts.

2. Whether Rose trees would be likely to grow against the wall of a house with flagstones over their roots?

[What we have always done with such Geraniums was this: We never cut down a variegated Geranium in the autumn; but few passed through our hands without trimming up for the sake of tidiness. When such plants moved in the spring they were stopped, or cut one-half down or three-parts down, according as we wanted stock of them. If no cuttings of this or that kind were wanted, this and that kind were not touched, unless some of the shoots pushed too much or too fast for the rest to keep up with them, these would be merely stopped. Very small, or young *Tom Thumbs*, the same; others of the same habit and less in growth, also the same treatment; but *Compactums*, *Punch*, *Cerise Unique*, and such strong kinds we always cut down the old stock of them.

Fine kinds of Roses will do no good with their roots under the flags if the flags have been long down, and the ground under them was not cultivated formerly. But the running Ayrshire Roses—as *Ruga*, *Dundee Rambler*, and all that breed, would probably do very well, no matter how stones stood under them. From what Mr. Beaton has said of the *Queen of the Prairies* flowering on the Rose pillars of the Crystal Palace, we purpose to recommend it to run over high or long distances in good aspects, and not to be pruned much either in summer or in winter, and not to expect flowers from it the first five or six years, and no matter how hot the place is if it is out of doors; and the same rules for *Cloth of Gold* and *Miss Grey*.]

PORTRAITS OF OLD ENGLISH GARDENERS.

THE TREDESCANTS.

It has been usual to spell the name of these eminent gardeners and naturalists Tradescant, but we have adopted the spelling employed by the junior of them in his recently-discovered will.

So little genuine information has been preserved concerning the family, and so little was it sought for until within these few years, that "Tradeskin" and even still more defective appellations have been employed when writing of them and their museum.

It is not improbable that the family, judging from the name, were of French extraction; though, without any sufficient grounds for the assertion, it has been usual to state that they came from Holland. Be this as it may, it seems clear to our judgment that John Tredescant, the elder, and the first of the family of whom we have any notice, was a native of England, and born in Worcestershire. The following is the foundation on which we found our opinion. At page 346 of his "Paradisus Terrestris," Parkinson has this intimation that Tredescant had been in Russia:—

"This 'Neesewort,' then called *Elleborus albus*, grows in many places in Germany, and likewise in certain places in Russia, in such abundance that, according to the relation of that worthy, curious, and diligent searcher and preserver of all Nature's rarieties and varieties, my very good friend John Tradescante, of whom I have many times before spoken, a moderately large ship (as he says) might be laden with the roots thereof, which he there saw on a certain island."

This induced Dr. J. Hamel to search in Russia for some records of that visit; that search was unsuccessful, but in examining the MSS. in the Ashmolean Museum, he found one giving an account of a voyage to Russia, undertaken by Sir Dudley Digges, in 1618. It is evidently in Tredescant's own handwriting, and contains the expression quoted by Parkinson. The words of the MS., referring to Rose Island, on the river Dwina, are "helebros albus, enough to load a ship."—(*Hamel's England and Russia. Translated by J. S. Leigh*, page 255.)

This MS. then was, probably, written by Tredescant; and that it was, is confirmed by the nature of the contents, from which we shall presently make some extracts. The title of the MS. is this:—

"A Viag of Ambassad undertaken by the Right Honnorabl Sr Dudlie Diggs in the year 1618, being atended on withe 6 Gentillmen, whiche beare the nam of the king's Gentillmen, whose nams be heere notted. On M. Nowell, brother to the Lord Nowell, M. Thomas Finche, M. Woodward, M. Cooke, M. Fante, and M. Henry Wyeld, withe every on of them ther man. Other folloers, on Brigges, Interpreter, M. Jams, an Oxford man, his Chaplain, on M. Leake his Secretary, withe 3 Scots; on Captain Gilbert and his Son, withe on Car, also M. Mathew De Quester's Son, of Filpot Lane, in London, the rest his own retenant, some 13 *whearof* (*Note on Jonne an Coplie wustersher men*) M. Swanli of Limhouse, master of the good Ship called the Dianna of Newcastell, M. Nelson, part owner of Newe Castell."

Now, we read the words in Italics thus:—"Note, one John and Coplie, Worcestershiremen." That "John" we think was Tredescant himself, and that he and Coplie were natives of Worcestershire.

Whether this were so or not, it is quite certain that he was settled at Meopham, in Kent, a few miles south of Gravesend, for its parish register records the birth of his son there in the year 1608.—(*Notes and Queries*, v., 266.)

This, probably, led to his acquaintance with Sir Dudley Digges, who resided near Canterbury.

The Diana, on board which were Sir Dudley Digges and Tredescant, sailed from Gravesend, June 3, 1618. We must be content with a few brief extracts from Tredescant's Journal. They touched at Newcastle for fresh provisions, and he notes down, "I bought 11 salmons for 6*s*. the cuple, and others for 4*s*. the cuple, which at London would have been worth £2 10*s*. the cuple."

On entering the mouth of the Dwina, July 16th, they received from the Agent as a present, "on good bullock, 2 sheep, 10 hens, 2 fesants, 6 pattriges, non like the Inglish."

Tredescant's impatience to acquire a knowledge of the plants of the Dwina, induced him to be at once landed by means of the ship's boat. Immediately he fell in with a berry resembling a Strawberry, but of an amber colour, and with leaves like the Avens (*Geum urbanum*); this must have been the yellow Cloudberry (*Rubus chamœmorus*). He sent some of the seed to Paris, to Robin, the florist, probably the Vespasian Robin, whose father John had established the first good garden in the French metropolis, whence, during the last ten years of the 16th century he carried on a mutual exchange of seeds with our Gerard. Parkinson in his "Theatrum," mentions that Tredescant had received some roots of "Doronicum americanum" (*Rudbeckia laciniata*), from Vespasian Robin. Jean Robin cultivated in his garden, about the year 1600, more than 1000 different species of plants. The genus *Robinia* is named after him. Henry IV., of France, conferred on him the title of "herboriste du roy."—(*Hamel's England and Russia*, p. 267.)

Tredescant, of course, makes many observations upon the plants of Russia. Thus, "In the contrie, as 5 parts is woods and unprofitable grounds. I have seen 4 sorts of fir trees an barch trees (*Betulus alba*) of great bignes, which in the spring tyme they make incistion for the juice to drinke, which they saye is a fine coole kind of drink, which lasteth the most part of May and the beginning of June." "For ther drinks they be meads made of hony and watter, and also beere; but ther Ruse beer is wonderfull base of an ill taste, but ther best meade is excellent drinke, mad of the hony which is the best honny of the world."

"I have seen Roses, only single, in a great abundance, in my estimation four or five acres together; they be single, and much like oure sinoment (cinnamon) Rose; and who have the sense of smelling, say they be marvelus sweete.* I hope they will bothe growe and beare heere, for amongst many that I brought home withe the Roses upon them, yet some one may grow."

They weighed anchor on the 6th of August (September?), and on "Tuesday, the 22d of August (September?), we landed at Saynt Katherine neer London, whear, God be thanked, we ended our viage, having no one man sick, God be thanked."

Two years after his visit to Russia Tredescant undertook a voyage into the Mediterranean in the expedition then destined to act against Algiers. He told Parkinson he had seen whole fields of Gladiolus in Barbary, and he brought home several new plants and fruits, among which was an Apricot, thus mentioned by Parkinson:—

"The Argier Apricocke is a smaller fruit than any of the other, and yellow, but as sweete and delicate as any of them, hauing a blackish stone within it, little bigger then a Lacure Cherry stone: this with many other sorts Iohn Tradescante brought with him returning from the Argier voyage, whither hee went voluntary with the Fleete, that went against the Pyrates in the yeare 1620."

Seven years subsequently, in 1627, he accompanied his then master, the unworthy and ill-fated Duke of Buckingham, in the unfortunate expedition against the Isle de Rhé. Even there his knowledge of earthwork was serviceable. In a dispatch to Secretary Nicholas, dated October 16th in that year, it is stated—"The winter comes on apace, the men endure much wet in the trenches, and John Tradescant is one of our best engineers;—pity our misery."—(*Calendar of State Papers*, 1627—28, page 390.)

Yet Tredescant was not diverted from his principal purpose, and it is recorded that he brought from Rhé the bulbous plant *Leucojum marinum maximum Parkinsoni.*—(*Parkinson, Theatrum*, 624). That the Duke sustained Tredescant in his efforts to enrich his collection of subjects in natural history is proved by the only letter of Tredescant known to be existing. It is preserved in the State Paper Office, is addressed to Secretary Nicholas, and dated from Newhall, July 31, 1625. It states that it is the Duke's pleasure that Nicholas should deal with merchants trading to foreign countries to furnish the Duke with all manner of rare beasts, birds, and plants. Several countries are enumerated, with the articles desired to be obtained from each.—(*Calendar of State Papers*, 1625—26, page 77.)

Newhall, from whence that letter is dated, was the Duke's residence, near Boreham, in Essex, recently purchased by him for £30,000.—(*Morant's Hist. of Essex.*)

Tredescant was gardener to the Earl of Salisbury, Robert Cecil; afterwards to Edward Lord Wotton at Canterbury; and then to George Villiers, Duke of Buckingham. Lord Wotton died in 1628, and the Duke was assassinated by Felton in the same year. Lord Wotton (Baron Merley) was employed as a diplomatist in France, Portugal, and Scotland, afterwards filling important offices at Canterbury, where he had a mansion formed of part of the ancient convent of St. Augustine. From the garden attached to this mansion, Tredescant sent plants to Parkinson (*Paradisus Terrestris*, 141).† Near the portraits of the Tredescants in Ashmole's Museum is a portrait of Lord Wotton. We derive our knowledge of this part of Tredescant's life from the following passage in Parkinson's "Paradisus," page 152.

"This Spider-wort [now made commemorative by being named *Tradescantia*] is of late knowledge, and for it the Christian world is indebted vnto that painfull industrious searcher, and louer of all natures varieties, Iohn Tradescant (sometime belonging to the Right Honourable Lord Robert Earle of Salisbury, Lord Treasurer of England in his time, and then vnto the right Honourable the Lord Wotton at Canterbury in Kent, and lastly vnto the late Duke of Buckingham) who first receiued it of a friend, that brought it out of Virginia, thinking it to bee the Silke Grasse that groweth there, and hath imparted hereof, as of many other things, both to me and others."

Shortly before Tredescant's death in 1638 the University of Oxford purposed to appoint him superintendent of their Physic Garden, established by Henry Danvers, Earl of Danby, in 1632.

That Tredescant died in the year mentioned, is proved by the following extracts from the churchwardens' account of St. Mary's, Lambeth:—

"1634. June 1. Received for burial of Jane, wife of John Tradeskin, 12*s*."

"1637-8. Item. John Tradeskin; ye gret bell and black cloth, 5*s*. 4*d*."—(*Notes and Queries*, iii., 394.)

The date of his death is further confirmed by that of the probate of his will.

"I have found," says a writer in *Notes and Queries*, vii. 295, "the will of the grandsire, 'John Tradescant, of South Lambeth, co. Surrey, Gardener:' it is dated January 8, 1637, and proved May 2, 1638, so that the period of his death may be fairly placed in that year, and the defect in the parish register for some months following July, 1637, will account for no entry being found of his actual burial. The younger Tradescant was his only child, and at the date of the will he had two grandchildren, John and Frances Tradescant. His son was the residuary legatee, with a proviso that if he should desire to part with or sell his cabinet, he should first offer the same to *the Prince*. His brother-in-law, Alexander Norman, and Mr. William Ward, were the executors, and proved the will. Tradescant held the lease of some property at Woodham Water, in Essex, and two houses in Long Acre and Covent Garden."—(*Ibid.*, vii., 295.)

In 1629, Tredescant had been appointed gardener to Henrietta Maria, the Queen of Charles I., and upon receiving that appointment it is probable that he removed to South Lambeth, from whence he could have easy access to the Palace gardens. At South Lambeth he established his museum, concerning which and his collection of plants we shall give full particulars when we publish our biographical notice of his son.

* This implies that Tredescant was defective in his sense of smelling; and he says so expressly in another place.

† Ducarel, who did not know that Tredescant had lived at Lord Wotton's, thought Parkinson meant South Lambeth, when he wrote Canterbury.

GRAFTING HARDY SHRUBS.

I am employed by my late master to work for him a quantity of hardy shrubs, on standards, and I am puzzled in the choice of stocks. What stocks would you recommend to work the Cotoneaster, and the Phillyrea, and the *Pyrus japonica*, also the Laurustinus on?—T. H. Stacey.

[Most of the shrubs that will do as standards and half-standards will do so better on their own roots. All the Laurels, Laurustinus, Bays, Box, Phillyræas, Alaternus, Lilacs, Snowball Guelder Rose, Buckthorn, *Berberis asiaticus*, Cornus or Red-wooded Dogwood, Philadelphus, Euonymus, the purple-leaved Nut or Corylus, and many more like them do exceedingly well trained up into standards of from two to five feet of clean stem, and all on their own roots, and that is the only way to get a permanent standard of *Cydonia japonica;* but for temporary use it will work on the ground, and the Cotoneaster will answer for a few years worked on the White Thorn, or May; but about Bath it grows higher than they have walls for it, on its own roots. We had it sixteen feet high in twelve years, tied up like a pillar Rose; and it is one of the best pillar plants we know, but as ugly a thing for a standard as one could well conceive. There is no book specially for budding and grafting, nor one-half so good and sure as the early volumes of The Cottage Gardener for this very project, which we have earnestly set forth in our early days and pages.]

GAZANIA SPLENDENS.

Having read in The Cottage Gardener, Vol. XXII., page 315, a description of a new bedding plant seen by Mr. Beaton at Messrs. E. G. Henderson & Son, Wellington Road Nursery, called *Gazania splendens*, and the best bedder of all the family, I would just note down a few remarks upon it.

Having seen *Gazania splendens* in flower, we have been able to judge it ourselves, and we believe it to be nothing more than the old Gazania or *Gorteria rigens*. We know gardeners that have bought *Gazania splendens* in the spring, thinking of having a splendid display of flowers in their flower garden, and they see now that what they have got is not a fragment better than *Gazania rigens*.

We have two beds of *Gazania rigens* here (Luton) which are, on a sunny day, one perfect mass of large and beautiful flowers about six inches from the ground; leaves about three inches long and half an inch wide, smooth and shining on the upper side, and quite white on the under side. The flower is an orange-yellow, with a yellow Daisy-like centre; the outside ray of petals being also yellow, with a purple ring at the bottom of the petals, and

a white spot on the purple of every petal. When the flower is fully expanded, a five-shilling-piece might be placed inside the flower. And in our estimation we believe that *Gazania splendens* is the same as *Gazania rigens*.—An Under-Gardener.

[Take another example of the pleasure of directing the young volunteers to shoot in the right direction, to keep them from harming themselves, or hurting others, or lead them astray. In the time of the Georges there was a nice Cape composite flower called *Gazania rigens*, which bloomed freely enough in pots, and as tuft or patch plants, by fits and starts all the summer through; and there was another Gazania called *uniflora*, with the flower more yellow and less orange than *rigens*—*rigens* was an upright stumpy grower, and *uniflora* was a prostrate trailing plant, which would run too fast and too soon out of bounds when allowed its own way in free soil. And so it was till about thirty years back, when the two crossed spontaneously, and produced the kind now called *splendens*. The seedling took to the flower of one parent and the habit of the other parent, as many cross seedlings do; *splendens* therefore unites in one new plant the best properties of two old plants; and when the weather goes right again you will see the difference between *rigens* and *splendens*.

In the "Botanical Register" of about 1834, or 5, or 6, Dr. Lindley mentioned an improvement on *Gazania rigens* as being then to be seen at Knight's nursery, or in the garden of the Horticultural Society at Chiswick, we forget which; but two or three and twenty years back we well recollect Mr. Munro pointing out the superior "properties" of the improved Gazania to us for "decorative purposes:"—that was, however, before we were led into the region of "Namby Pamby," and we took little heed of such things. Our kith and kindred did the same at that period, and the improved Gazania was lost for twenty years. It strayed across the kingdom into Wales, where the sea stopped it from getting out of the country altogether; and there it was sure as trumps, till one of those flying scouts who scour the country for cash and orders for the London trade found it and bound it, procured and secured, for the respectable firm of E. G. Henderson & Son, of the Wellington Road Nursery, St. John's Wood, London, W. And if any of you will ask Mr. W. Wood, who does the new things there, he will certainly not deny that he heard every word of this story fourteen months back, for he is not the man to turn his back on any one.—D. B.]

BISHOP AUCKLAND FLOWER SHOW.

The above Society held their eighth exhibition on the 21st ult. Perhaps no other provincial Society can boast of more extended patronage, 30,000 persons being present, and above £800 taken at the gates—which would have been much larger had not one of the Committee taken upon himself to admit all rifle volunteers free.

We doubt whether any other local Society can afford to expend £1000 on an exhibition of the kind. The prizes and payment of the band and other expenses amounted up to this sum.

The morning amusement consisted of an open-air concert given by the royal artillery band (69 performers), who, as usual, gave great satisfaction. At 1 o'clock the tents were opened to the public.

The exhibition of stove and greenhouse plants in flower was, as we expected, not so numerous as in former years. The collection of six shown by Mr. Richardson, gardener to G. Pease, Esq., were large plants; but we have seen them shown three or four years back in much better condition.

Ornamental and variegated-foliaged plants came out in splendid condition. Mr. Shortt, gardener to the Duke of Cleveland, far outstripped all competitors. In his stand of six we noticed *Cyanophyllum magnificum*, 7 feet high, with leaves 29 inches long and 16 inches broad—the finest plant we have yet seen. In the same class was *Caladium Bellymerii*, decidedly the best of Chantin's new ones; *C. argyrites* and *C. Chantinii*, and fine plants of *Aralia papyracea* and *Campylobotris argyroneura*.

Ferns and Lycopods were largely exhibited and in good condition. In exotic Ferns Mr. Shortt came out with beautiful plants of *Pteris tricolor*, *P. argyræa*, *Dictyoglossum crinitum*, *Todea pellucida*, *Dynaria coronans*, and *Aspidium molle corymbiferum*. British Ferns were shown in excellent condition by Mr. Simpson, of Bedale.

We noticed a curious and beautiful Lycopodium, named *serotina*, quite new to us. On inquiry we found it to be a New Zealand species imported by Mr. Shortt.

Owing to the lateness of the season, the only exhibitor of Hollyhocks was Mr. Chater, who, of course, took the first prize. Among his lot we particularly noticed *atro-sanguinea* and *narcissus*. We heartily wish success to the Bishop Auckland Society.—R. C.

[We heartily join our correspondent in his wish; and have diverged from our rule not to admit reports of local flower shows, because we think that of Bishop Auckland might be accepted as a model by many others.—Eds. C. G.]

FIG TREES UNDER GRAPE VINES.

The writer has a large Fig tree of the *Brown Turkey* variety, on the back wall of a vinery, covering a space of the wall thirty feet long and fifteen feet high, which has been planted four years, and grown most luxuriantly, but borne little fruit. Can you give me any information what means I might adopt to get a crop of Figs? I may add that the tree is by no means too much shaded by the Vines. They were planted at the same time as the Fig, and are grown on the spur system; three feet between each stem. Two years ago I had the Fig trees root-pruned, and paved under the roots, and built in with stone and lime, confining it to a space of seven feet long by three feet wide, with the intention of checking the strong growth, but no difference is perceptible in the crop. The vinery is never earlier started than the first week in March.—A Constant Subscriber.

[You have done what we should have recommended you to do with your Fig tree; but as even that does not answer, we have no doubt that the shading from the Vines is the cause of failure. If we read your writing right, the Vines are three feet apart, and we presume that they cover the roof. Now, though spurred, very few direct rays of light will reach the back wall after the Vines are fully in leaf. If Figs are a principal object, we would advise you, in addition to keeping the Fig soil rather dry in winter, to take away a Vine or two, so that at one end of the house, or any part of it, the Vines shall stand five or six feet apart. The Figs there will have so much forelight, that in the season following the experiment we prophesy you will have plenty of Figs. The Fig will grow but not fruit if much shaded.]

NATIONAL HOLLYHOCK SHOW AT THE CRYSTAL PALACE.

The Great National Hollyhock Show was opened at the Crystal Palace on Saturday; but in consequence of the late ungenial weather the exhibition was not what might have been expected, and what it certainly would have been in ordinary seasons. There were, however, several splendid exhibitions; among which we must not fail to notice those of Messrs. Chater, Paul, and Bragg among nurserymen, and Rev. S. W. King, Mr. W. Plestred, and Mr. Thomas Roake among amateurs. There were 3601 visitors present. The prizes were as follow:—

Class I.—To Amateurs.

A.—*For Nine spikes, dissimilar varieties.*—First, Rev. S. W. King, Saxlingham, Norwich. Second, Mr. W. Plestred, Elsenham, Bishop's Stortford.

B.—*For Seven spikes, dissimilar varieties.*—Prize, Mr. Thomas Roake, Clewer, Windsor.

C.—*For Five spikes, dissimilar varieties.*—Prize, Mr. Alfred Chater, Cambridge.

D.—*For Twenty-four cut blooms, dissimilar, not more than two of a sort.*—First, Rev. S. W. King, Saxlingham, Norwich. Second, Mr. W. Plestred, Elsenham, Bishop's Stortford.

E.—*For Twelve cut blooms, dissimilar, not more than two of a sort.*—Prize, Mr. Thomas Roake, Clewer, Windsor.

Class II.—To Nurserymen.

F.—*For Fifty spikes, not less than twenty varieties.*—First, Mr. W. Chater, Saffron Walden. Second, Messrs. A. Paul and Son, Cheshunt.

G.—*For Eleven spikes, dissimilar varieties.*—Prize, Mr. W. Chater, Saffron Walden.

H.—*For Nine spikes, dissimilar varieties.*—First, Messrs. A. Paul and Son, Cheshunt. Second not awarded. Third, Mr. Bragg, Slough, Bucks.

I.—*For Forty-eight blooms, dissimilar, not more than two of a sort.*—First, Mr. W. Chater, Saffron Walden. Second, Messrs. A. Paul and Son, Cheshunt.

K.—*For Twenty-four blooms, dissimilar, not more than two of a sort.*—Prize, Mr. Bragg, Slough, Bucks.

Certificates of Merit for Seedlings.

Mr. W. Chater, Saffron Walden, First-class Certificate, "Prince Albert."
Mr. W. Chater, Saffron Walden, Second-class Certificate, "Regina."
Mr. Bragg, Slough, First-class Certificate, "Lord Taunton."

VARIETIES.

The Gardens of London.—The Middle Temple boasts its noble avenue of Limes. The Inner Temple possesses an extensive garden and promenade. The Temple Garden will always be

remembered as the scene where Shakespeare imagines red and white Roses were first assumed for party emblems. Richard Plantagenet gathers a *white* Rose, the Earl of Somerset a *red* one; they quarrel, and Warwick speaks to Plantagenet,

> "In signal of my love to thee,
> Against proud Somerset and William Poole,
> Will I upon thy party wear this Rose:
> And here I prophesy, this brawl to-day,
> Grown to this faction in the Temple Garden,
> Shall send, between the red Rose and the white,
> A thousand souls to death and deadly night."

The original gardens at Gray's Inn were planned by Chancellor Bacon. Pearce informs us:—"In the 40 Eliz., at a pension of the bench, the summe of £7 15*s.* 4*d.* was allowed to Mr. Bacon for planting Elm trees here. Next year, more young Elms were ordered for the long walk, at the discretion of Mr. Bacon and Mr. Wilbraham, the charge for which was £60 6*s.* 8*d.* Mr. Bacon built a small summer-house on the terrace, where he probably mused upon the subjects of those great works which have rendered his name immortal." A Catalpa tree may be seen here, raised from a slip of one planted by Lord Bacon. The Elm walk was a fashionable promenade in Charles II.'s days, as we are informed by Pepys in his diary. Many of the noble trees were cut down some twenty years ago to make room for a block of chambers—a desecration justly complained of at the time. Most of the ancient City halls and mansions had gardens, Lime-tree walks, fountains, summer-houses, and grottoes. Grocers' Hall had, in 1427, a spacious garden, "with hedgerows and a bowling-alley." Merchant Taylors' Hall had spacious pleasure-grounds, with a "terrace and summer banqueting-house." Salters' Hall was built in what was once the garden of the Priors of Tortington; and Ironmongers' Hall had an enclosure, much valued for "Vines and Roses, and knots of Rosemary." Sir Paul Pindar had a grand ornamental garden in Bishopsgate Street—it reached almost to Finsbury Square. Milton, who delighted so much in *garden-houses*, had a pleasant dwelling, surrounded by trees and flowers, in Aldersgate Street, where many of the aristocracy then resided; for the instant you stepped without the City walls fields and country scenes became a part of your prospect.—(*City Press.*)

TO CORRESPONDENTS.

TRANSPLANTING HARDY FRUIT TREES (*W. M. G.*).—You may begin to transplant as soon as the leaves begin to fall. This you will find to take place about the middle or end of October. The remark applies to all the fruits you mention; and if the transplanting is done carefully, so as not to destroy any more fibres than is absolutely necessary, you have a reasonable prospect of some fruit next season.

GARDENIA RADICANS CULTURE (*A. L. M.*).—The best treatment for *Gardenia radicans*, is to grow it in sandy peat and a little loam, rather underpotted. Give it all the light and air you can now, and what water at the roots it needs, and frequent syringings overhead early in an afternoon before shutting up the house or pit in which it is growing. If standing out of doors see that the place is warm, and that no worms are allowed to enter the pot. In winter, house in a warm greenhouse. In March or April, remove the plant to a nice sweet hotbed, temperature averaging from 60° to 65°; bottom heat 70° to 80°; place the plant on the bed for a week, then plunge the pot halfway for another week, and then place it deeper still. The sweet vapours from the decomposing material cause the buds to swell freely, and the leaves to assume a very green healthy appearance. As soon as the buds begin to swell to opening, remove the plants to a drier house to bloom in, but where the temperature is not much lower at first. Plants kept dryish and rather cool in winter, will come into bloom when excited with a little more heat, whether from fires early in the season or from the sun in May, June, and onwards; but there is no mode by which the plants can be forwarded that beats the fermenting-bed, with water pipes if convenient for top heat. The comparative rest in autumn and winter, is necessary for fine early blooming. The reason why disappointment so often happens when a nice little flowering plant is purchased, is just because the purchaser does not know, or does not think of the high temperature, and the moistish atmosphere, the plant most likely received before it came into his hands, and it is allowed to stand outside a window, or in a corner anywhere when done flowering, until the growing principle even has received a check, which it would take a season to get over.

DESTROYING CRICKETS (*A Subscriber*).—Try ground *Nux vomica* mixed up with oatmeal and as much fat or grease as will make it into little pills, which lay in their runs. You need not fear from the expansion of the pipes, they will expand as much as they need, but at the end of the chamber you may require to plaster occasionally. Crickets are difficult to keep out when resolved to be in.

VARIOUS (*Yram*).—Prune *Erica mediterranea*, and such kinds, freely in May, or early in June. You may use the knife, and even in extreme cases, the shears freely. That will give time for the young shoots to ripen well before winter. The Fern is *Adiantum capillus Veneris*, the true Maiden Hair. It is native in many English localities. Your Cyclamens have nothing the matter with them, we think. Pot and water as they grow. We hardly understand your query. If there is a bunch of bulb-like tubers divide and put a tuber in each pot. A single tuber can hardly be nine inches in diameter (circumference?); but whatever the size of the individual tuber, we should be much against dividing it at all. The larger the tuber, other things being equal, the finer will be the mass of bloom. The exchanges you mention cannot be permitted.

MYOPORUM PARVIFOLIUM, AND LEPTOSPERMUM BACCATUM (*A. J., Bath*).—These two old-fashioned plants are still worth caring for, as they bloom profusely in winter and early spring. Had the inquiry been made earlier so that the answer could have been given early in August, instead of early in September, we should have advised turning the plants out of the pots, disengaging the roots round the ball, so as to allow some of the soil to fall, and then shift them into well-drained pots a size larger, keep in the shade for a fortnight, and syringe the tops during a hot day, instead of water-logging the soil; remove into the sun by degrees, and house by the middle of October. The soil we would use is sandy loam, with about one-sixth part of leaf mould and heath soil. Even now, were we sure of a fine autumn, we would do as indicated above; making the shift, however, smaller than in the above case, by removing less of the old soil, though gently disengaging the roots a little with the points of the fingers, or a fine-pointed stick. In either case it is advisable that the plants receive no bright sun for a few days after they are potted, and be fully exposed for several weeks before housing time. The reason for the first care is, that the roots after being disturbed will not supply the same amount of evaporation, &c., from the foliage, as they did before; and the second reason is, that the young shoots should be well matured before housing, as upon them the little flowers are most plentifully produced. Another thing,—watering thoroughly such pot-bound plants before potting should also be attended to. We saw a plant of the first that was a favourite with its owner, died last winter. It would flag and look sickly, notwithstanding due watering, &c., but when thrown to the rubbish-heap it was found that the mass of the ball was thoroughly dried up, though the soil surrounding it was wet enough. If we thought that the autumn remaining were to be as cloudy and rainy as the last six weeks have been, we would advise removing carefully a portion of the surface soil, thoroughly cleaning and scrubbing the outside of the pots, and fresh surfacing with a compost similar to that mentioned, only a little richer. The plants will most likely produce their little flowers all the more plentifully, and then they might be shifted next season, in May or June, and kept in the house a few weeks afterwards, before being placed in a sheltered place out of doors.

SIR J. PAXTON'S AGENT (*P. Hunter*).—The houses were not advertised in our columns. We do not know the address.

SEEDLING PETUNIA (*D. Fergusson*).—A most charming flower for pot culture, and probably for beds, and the next, in fancy looks, after *Madame Henry Jacotot*, of the "Illustrated Bouquet." Such flowers tell their tale of distant ages, when their petals were not all joined together as they are now, and in the divisions of the petals. This flower is striped up from the bottom with five bands of rich purple. The rest of the flower being white, or nearly so, with a dark purple bottom. Our *Calistegia pubescens simplex* is marked with five light bands in the way of this Petunia.

CIRCULAR GREENHOUSE.—*M. W.* wishes to know where the circular portable greenhouse mentioned in Mrs. Loudon's "Ladies' Companion to the Flower Garden," seventh edition, 1858, p. 146, fig. 31, can be procured.

GLOXINIAS FROM LEAVES (*M. G. C.*).—You are quite right in the course you are pursuing with the Gloxinia leaves. Keep on the glasses till you find roots have been emitted into the sand and buds have formed. You must send a better specimen of the plant you wish to have named, as we cannot make anything of the small portion you enclosed.

CYPRIPEDIUM SPECTABILE (*J. M. Heathbank*).—The leaf you have sent is rather shorter and broader than the leaves of the true *Cypripedium spectabile*. You say the colour of the flower is claret and white. The flowers of *C. spectabile* are purple and white; but there are many varieties, and yours may be one of them—perhaps a new one. The species is figured in Curtis's "Botanical Magazine." If you can procure a sight of that figure you will see at once whether yours is the true "Simon Pure." There are many shades of claret—namely, red claret, purple claret, and brown claret; so your plant may be right. How any one can speculate, as you say they do, that it is a stove plant, we cannot imagine. Surely the plants of North America, where the winters are many degrees colder than ours, must be hardy enough to bear our comparatively-speaking mild winters. However, had we such a rare and beautiful plant, we should certainly shelter it in a cold pit or frame; not so much to protect it from frost, as from heavy rain, and snow, and sudden changes. You ask how it should be propagated. See what Mr. Appleby says in No. 622, page 330, of THE COTTAGE GARDENER. It is not difficult to increase when the plants have several crowns and are well rooted.

EXHIBITING AT A FLORAL FETE (*G. S., a Regular Subscriber*).—Do you mean that one person exhibited two articles in one class, contrary to the rules of the Show, and that to do so he exhibited one of the articles in some other person's name? If so, he acted fraudulently.

GERANIUM COUNTESS OF BANDON (*E. Shepstone*).—The colour a delicate pink, and trusses large, but the petals were all shed. Geranium trusses in bloom will not travel.

DOUBLE PETUNIA (*E. Jones*).—This flower, mentioned by us last week, is named by Mr. Jones *Bride*.

WOODLICE (*Glenflesk*).—Your walls are probably old and full of cavities. Have these filled with cement; stir up the soil at the base of the wall, and sprinkle it with guano, or water it with gas ammoniacal liquor; put short lengths of dry Bean stalks near the wall—the woodlice conceal themselves in them, and are easily blown out.

MELONS AND CUCUMBERS (*A. B. G.*).—You cannot do better than grow the *Beechwood* and *Trentham Hybrid* Melons, and the *Manchester Improved* and *Carter's Champion* Cucumbers.

ORANGE GIN OR ORANGE BRANDY.—"*Mrs. Dorking*" sends the following recipe:—One gallon of the best gin or pale brandy to a pint and a half of Seville Orange juice and 2 lbs. of fine loaf sugar, the peel of twelve Seville Oranges, and the juice and peel of two Lemons, also the peel of three sweet Oranges rubbed off upon an extra quarter of a pound of loaf sugar. Let the whole stand three days closely covered down in a crock. Stir it round three or four times a-day; then pass it through a jelly-bag until it is quite clear; then bottle it off. It requires generally to go through the bag three times, when it is very, very clear. This receipt is most excellent, and the compound pronounced very fine by all good judges. Another correspondent (*B. C.*), says:—"To 1 quart of best

brandy put four or five Seville Oranges into an earthen jar quite air-tight. Turn the Oranges three times every week, and let them remain a month. When taken out put 1¼ lb. of pounded sugar, or 1 lb. of sugar candy to every quart of brandy. When dissolved bottle it." Gin, probably, may be substituted for the brandy.

Sea-Kale Forcing in a Cellar (*D. C.*).—Take up the plants as soon as the leaves are all dead. Injure the roots as little as possible. Salt may be put into the water given, but the soil only requires to be kept moderately moist.

Preserving Leaves (*J. P., a Subscriber*).—To have them for forming a hotbed in spring, store them dry, and keep them dry, under cover until you require them.

Ants (*E. H.*).—Scatter guano over their haunts, or water them with ammoniacal liquor from the gas works. Such treatment kills some and drives away the survivors.

Dropmore Flower Garden.—A correspondent, *W. Hudson*, says that this is fully detailed, and the plan given in the "Gardeners' Magazine" for January, 1828. He kindly sent us a copy, but we do not think it necessary to republish it.

Name of Weed (*T. B. B. O.*).—It is the *Gnaphalium germanicum*, commonly called Cudweed or Chafeweed. The latter name was given on account of the plant being used to cure wounds caused by chafing. It was formerly given internally to cattle, and to human beings suffering from bloody flux. Our correspondent wishes to obtain bulbs of *Narcissus pulchellus*, and *N. triandrus*.

Cineraria (*A Constant Reader*).—It will not repay you for the trouble of keeping through the winter. You had better raise fresh ones from seed.

St. Swithin (*Q. Read*).—We are obliged by your note, but every one knows the legend. We were present a few years since when the foundat on was laid open of the chapel in which St. Swithin was buried, close to the western entrance of Winchester Cathedral.

Names of Plants (*John Williams, Reigate*).—1. Some kind of Achillea. 2. A Senecio, probably *Jacobœus*. 3. *Inula conyza*. Refer to our last week's No., page 333, reply to "H. F.," and we may now add, that it is unreasonable to send scraps of flowers without leaves, like yours, as to send leaves without flowers, and expect them to be identified. (*B. S.*).—Yours is not a Spergula, but *Sagina procumbens*. (*A New Subscriber*).—The plant of which you sent flowers and a drawing, is *Bignonia jasminoides*. (*E. R., Kent Road*).—Your plant is *Leycesteria formosa*. (*L. L.*).—Your Ferns are *Onychium japonicum*, and *Pteris tremula*. (*Constant Subscriber, Plymouth*).—Your plant is the *Spiræa filipendula*, or Dropwort. The double-flowered variety is very ornamental.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

September 4th. Pocklington (Yorkshire). *Hon. Sec.*, Mr. Thos. Grant, Pocklington. Entries close August 28th.
September 5th. Mirfield. *Sec.*, Mr. H. Rushforth, Escholt Place, Mirfield. Entries close August 27th.
September 5th. Keighley Agricultural Show. *Sec.*, R. Fawcett. Entries close August 29th.
September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.
September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.
October 4th. Middleton Agricultural. *Sec.*, Mr. T. Mills. Entries close September 27th.
October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.
December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

CRYSTAL PALACE POULTRY SHOW.

(*From our Reporter.*)

This Exhibition just terminated would have afforded, had it been necessary, fresh proof that there are some things all men have in common, and that they are subject to the same influences. It was the remark of every one, that it was wonderful how so many and such good chickens had been reared in such a season as we have had. Lest the fact should be forgotten or overlooked, the rain beat on the glass roof, as one of the men said, "as though it had never rained before." The reflection that it was not only a present inconvenience, and possibly a pecuniary disadvantage, but that its continuance would become a national calamity, affected every one more or less. We are happy to say the interests of the Show did not suffer in consequence. The birds did well, and many, we think, left in better condition than they were in when they arrived. The attendance was very good, and the sales were numerous. Everything showed our favourite pursuit was, if possible, in greater favour than ever. Mr. Houghton deserves all the success he meets with; he is indefatigable, and his courtesy is never at fault. We have now nothing to do but to review the classes, and to point out such things as seem to call for a separate mention.

We think we may safely say the *Spanish* were as good as we ever meet at this season of the year. The first and second prizes fell to Mr. Craigie, and the Marchioness of Winchester. These are both new names, and it is no small triumph to begin by beating Mr. Rodbard. We must, however, exclude the Single Cocks from this praise. They were exhibited in very small numbers, which surprises us, because it is certainly easier to find twenty good cocks than three good pullets.

All the *Dorkings* were very good, the weakest class again being the *Single Cocks*. It is singular that the four prizes in the fourth class, comprising between thirty and forty entries, all went to Birmingham. Mr. Wakefield's first-prize pullets were of exceeding beauty, and made us wonder why that gentleman should exhibit deformed feet in pen 52.

Captain Beardmore gained the vase for *White Dorkings*. It was no mean exploit for Mrs. F. Blair to send from Scotland, and run hard up for it. The same lady may *boast*, for she sent from Scotland and beat the breeders on their own ground with an excellent Grey cock in the single class.

The improvement in *Cochins* must be satisfactory to every one, and the prize birds will be prize birds again, if they keep the promise of their youth. This was an excellent class, if we except the *White*. We did not think them as good as usual, nor were they as forward as the *Buffs*. At a Chicken Show in August, age will always be most important. We do not for a moment mean to say it will cover defects; but birds five months old will beat those of three. There is also an age at which a Cochin cock was not intended to be exhibited. At this time he gives promise of great growth, and all that is desired; but he is so angular, so awkward, and so ungainly, he cannot win. We can only compare one to Noah Claypole, when that excellent young man had out-grown the dress provided by a liberal parish. Long, bony wrists were seen below the cuffs of his green jacket, and the "leathers" refusing to be *knee*-breeches any longer, partially covered his long lean thighs. The *Partridge* birds were very good. The *Single Cocks* were excellent, and the purchaser had bargains in Messrs. Stretch and Hassard's birds.

The *Brahmas* were beautiful, and formed a very good class, except in *Single Cocks*. Mr. Botham's birds left nothing to desire.

Even the *Game* showed they had to struggle against unpropitious weather, had lacked sun and dust, and were what they were in spite of the elements. As usual, the *Black-breasted Reds* were the most numerous, and the prize pens were highly meritorious. The same may be said of the prize single cock belonging to Mr. Archer.

The next was, we think, one of the best classes we ever saw, the *Golden-pencilled Hamburghs*. There were many birds in it that were as perfect as we ever saw chickens. Perfect in colour, combs, pencillings, and deaf ears. The *Silvers* were good, but not *so* good; and, again, the Cock classes were deficient. The *Spangled* were not so strong, either in quality or numbers as the *Pencilled*.

Polands produced some good birds, especially those belonging to Mr. Adkins.

Malays are always good at the Crystal Palace, and this Show formed no exception; both prizes as usual went to the east of London, and Mr. W. Manfield richly deserved his two high commendations.

The distinct breeds produced *Crève Cœurs, Andalusians, Black Hamburghs*, and *Cuckoo-Cochins*—all good birds.

We thought little of the *Silver Sebrights*, the breed seems almost lost. The *White Bantams* were very good. The *Game* formed an attractive class. The *Black Reds* predominate in merit, as the *Duckwings* were not forward in feather.

Mr. W. Manfield's *White Geese* were beautiful specimens, and the difference between the first and second pens was but half a pound. Their weight being 44 lbs. and 44½ lbs. Mr. Fowler's *Greys* were equally distinguished. They weighed 49 lbs. and 43½ lbs.

The latter gentleman's prize *Ducks* weighed 21½ lbs. and 20 lbs. He also took first for *Rouens*, closely run by Mr. Punchard, who showed birds of remarkably pure plumage.

The class for varieties of *Ducks* bids fair to become most attractive. It has already produced *Mandarins* and *Carolinas*. Now we had ruddy and common *Sheldrakes*, all belonging to Mr. H. Dutton Bayley. *Call Ducks* and *Buenos Ayrean* were also shown of excellent quality.

This will be the place to mention two most remarkable *Geese* exhibited by H. D. Bayley. They were sent to him from Sebastopol, and are certainly unlike anything ever seen here before. The head, neck, and bodies, to the middle of them, are like ordinary white Geese. From this part the feathers assume quite a new character. They have the same appearance as the ends of

the wing-feathers of the Black Swan, curling and twisting like a corkscrew; but there is also another peculiarity which is not shared even by the Black Swan. It is, that many of these curled feathers would seem to be detached from the quill, and float like streamers or ringlets. This is the sort of introduction that has our best sympathies; because, if it became general, it would add much to the appearance of our yards and commons, and with a more attractive plumage would still secure to us all the valuable properties we prize in our ordinary breeds.

We have now only to mention the *Turkeys*. The Rev. T. L. Fellowes took all the prizes. His three poults in each pen weighed 23 lbs. and 22½ lbs. Mr. T. Williams's birds were very good, they weighed 21½ lbs.

BLACK-CRESTED WHITE POLANDS.

It seems strange that, although so many of your correspondents write about the manufacturing of different breeds of fowls, this long-lost and much-coveted variety has not yet been produced. The beautiful Sebright Bantams, as everybody knows, were produced by crossing; why should not the Black-crested White Polands? A cross between a White Poland and a White-crested Black Poland, judiciously crossed again, would surely in time produce perfect birds.

If any of your readers have tried the experiment I should feel obliged if they would communicate the result in THE COTTAGE GARDENER, as I deem it an interesting subject to every poultry fancier.—W. R. E., *Plymouth*.

DEWSBURY POULTRY EXHIBITION.

(*From a Correspondent.*)

THE annual Meeting of this Society took place on Wednesday, August 29th, and far outstripped any of the preceding ones. More than the usual number of poultry competed for the premiums offered; and the competition in almost every class was of the highest order. The field in which the Show was held is peculiarly well adapted for the purpose of a Poultry Show. The fowls were shown in splendid condition considering the time of year.

On our first entrance the adult *Cochins* shown in splendid condition, also the chickens, which is an honour to the owner. The *Spanish* came next. They were not so good as we have seen at this Show. The *Dorkings* on the whole were good. Mr. H. Hemsworth's chickens were the best we have yet seen. Messrs. Dixon, Cannan, and J. Crosland, jun., showed really good birds, and took their share of prizes. Mr. Dixon's *Poland* chickens were excellent. There were parties in the field just returned from the Crystal Palace. They were surprised to find such a splendid show of chickens at Dewsbury, and told the Exhibitors had they been at the Palace they would have won. We are sorry to say we have been, and if I am not mistaken, Bradford and the neighbourhood got such a shock which has not been forgotten. I grant a Yorkshireman might be caught once; but he is much like a fox, he must not be caught easily again. It is quite understood Yorkshiremen intend to support their own Shows. I am sorry to say the Crystal Palace will have little of our support. We must leave this question and commence with *Game*. These classes of birds are becoming the style of Game we have long looked for. The Black Red chickens were really good, as were the Duckwings and Blacks. *Bantams* were good, Mr. Crosland, jun., again stands first with his old pen of Whites, also his Black Reds. Mr. J. Thornton won with a nice pen of Duckwings. Gold-laced are much improved at this Show. The *Single Game Cock* prize went to a Brown Red, the best we have seen of late. *Ducks* and *Geese* were very large. Mr. Cannan showed very good *Pigeons*.

We are very glad to inform our readers there were no complaints respecting the judgment. It is a pleasure when we hear the losing parties say they are satisfied, we have every reason to believe they were. Mr. Beldon, one of our well-known breeders, and Mr. Stuart, were the Judges, which gave credit to the Show. The following is a list of the awards:—

COCHIN-CHINA. — First and Second, W. Dawson, Hopton, Mirfield. *Chickens*.—First and Second, W. Dawson.

SPANISH.—First, J. Dixon, Bradford. Second, J. Rayner, Morley. *Chickens*.—First, J. Dixon. Second, W. Cannan.

DORKING.—First, W. Cannan. Second, H. Hemsworth, Lupset Hall, Wakefield. *Chickens*.—First, H. Hemsworth. Second, W. Cannan.

HAMBURGH (Golden-spangled).—First, W. Cannan. Second, J. Dixon. *Chickens*.—First, J. Crosland, jun., Wakefield. Second, J. Dixon.

HAMBURGH (Silver-spangled).—First, J. Dixon. Second, W. Cannan. *Chickens*.—First, W. Cannan. Second, J. Dixon.

HAMBURGH (Gold-pencilled).—First, W. Cannan. Second, J. Dixon. *Chickens*.—First, W. Cannan. Second, J. Dixon.

HAMBURGH (Silver-pencilled). — First, J. Dixon. Second withheld. *Chickens*.—First, W. Cannan. Second, J. Dixon.

POLANDS.—First, J. Dixon. Second, W. Cannan. Highly Commended, J. Dixon. *Chickens*.—First and Second, J. Dixon.

GAME (Black-breasted and other Reds).—First, J. Crosland, jun. Second, J. Heely, Hepworth. *Chickens*.—First, Noble & Iveson. Second, J. Crosland, jun.

GAME (White and Piles).—First, H. Mason. Second, J. Crosland jun. *Chickens*.—First, Noble & Iveson, Heckmondwike. Second, J. Heely.

GAME (Black). — First, J. Crosland, jun. Second, Noble & Iveson. *Chickens*.—First and Second, Noble & Iveson.

GAME (Duckwings).—First, J. Crosland, jun. Second, Noble & Iveson. *Chickens*.—First, S. Scholefield. Second, Noble & Iveson.

BANTAMS (White).—First, J. Crosland, jun. Second, S. Scholefield. Highly Commended, J. Dixon.

BANTAMS (Black).—First, J. Dixon. Second, M. Ridgway, Dewsbury.

BANTAMS (Laced).—First, W. Cannan. Second, J. Crosland, jun.

BANTAMS (Game).—First, J. Crosland, jun. Second, J. Thornton, Heckmondwike. Highly Commended, J. Thornton.

ANY DISTINCT BREED.—First, J. Dixon. Second, W. Dawson. *Chickens*.—First, W. Cannan. Second, J. Dixon.

BEST COCK.—First and Second, T. M. Brook, Dewsbury.

BEST HEN.—First, M. Ridgway. Second, H. Hemsworth.

DUCKS (Aylesbury).—First, W. Cannan. Second, G. Farnhill, Carbughow.

DUCKS (Rouen).—First, J. Dixon. Second, W. Dawson.

GEESE.—First, W. Cannan. Second, J. Dixon.

TURKEYS.—Prize, J. Dixon.

GAMES.—First, J. Crosland, jun. Second, Noble & Iveson. Third, W. Wheteley.

PIGEONS.—*Carriers*.—Prize, W. Cannan. *Almond Tumblers*.—Prize, W. Cannan. *Tumblers*.—Prize, W. Cannan. *Barbs*.—Prize, W. Cannan. *Turbits*.—Prize, W. Cannan. *Jacobins*.—Prize, W. Cannan. *Fantails*.—Prize, W. Cannan. *Croppers*.—Prize, W. Cannan. *Antwerps*.—Prize, G. Breavey.

A HEN ADOPTING ORPHAN CHICKENS.

HAVING lately observed among my poultry a natural curiosity, I have presumed to acquaint you with it, thinking you may deem it worthy of notice.

I had a brood of nine fine chickens hatched by a good Game hen, late in June or early in July. They progressed capitally for several days, until something, either cat or rat, destroyed seven in one night. Two only remaining, these the hen carefully nursed for five weeks, then suddenly left them, and commenced laying again. They wandered about pensive for a time, and at length began foraging for food like old fowls. Whilst doing so they discontinued that peculiar cry of chickens, and took to a kind of whistling crake like pullets of five or six months old. After being without a mother by day, and roosting by themselves at night for a fortnight, an old white-faced Spanish hen which I have had for four years (being a favourite), and have never during the whole time observed broody, or have ever heard clucking, suddenly took to the chickens, calling them, and clucking lustily. They were very suspicious of her for several hours; but the pertinacity with which she continued following them, and carrying morsels of food to them, soon made them familiar with her, and she now nurses them more carefully than I have ever before observed a hen to do. They now roost comfortably underneath her wings at night. And what appears stranger still is, that they have resumed their shrill cry peculiar to chickens, and respond to her call immediately, though they appeared quite to have forgotten it, as they utterly disregarded it for some time after the commencement of her attention; but she now fights for them vigorously, though they are good-sized chickens. They have also that fretful cry, when they want nursing during the day, which was not heard while they were orphans.

Should you consider these few rhapsodical remarks as containing anything interesting to you, I shall be glad to see it acknowledged in THE COTTAGE GARDENER. The hen and chickens with the original mother may be seen in my yard.

I fear the hen will famish herself, so assiduously does she reserve and carry every morsel to the chickens. It is now rather more than a fortnight since she has taken to them.—W. HENRY HODGES, *Little Dean*.

REMARKABLE TENACITY OF LIFE IN A FOWL.—F. Horsfall, Esq., M.D., of Wakefield, recently found a Cochin-China fowl belonging to him firmly fixed between two pieces of wood. He supposes that it must have been in that position nearly a month, during the whole of which period it was without food. When discovered it was alive; and Dr. Horsfall entertains the hope that he will be able to restore it to health by the administration at intervals of small doses of ardent spirits.

STICKS IN HIVES.

I COMMENCED bee-keeping a few years ago, to my subsequent very great gratification, with Taylor as my guide, whom I have always found most useful, though not quite infallible.

In the hives prepared to receive the swarms from my first two straw skeps purchased from a cottager I acted then (as I have done since) on the advice of my author, that sticks in hives were superfluous, and only an annoyance to the bees, and therefore left them out, thinking at the time I was greatly in advance of the cottager, the ends of whose sticks were only too visibly protruding through the sides of the skeps. Subsequent experience has convinced me to the contrary—that first autumn I was disappointed to find two or three combs had fallen in one of my stickless hives. As it had not been in the least disturbed, I endeavoured to allay my doubts by ascribing the misfortune to the flat wooden roof, and the sudden importation of a considerable quantity of honey from a neighbouring queenless stock the inmates had pillaged. Very recently, however, I have been deprived of one of my best stock-hives from the same cause. This hive (a common straw) being stored well with honey, and the queen not breeding to my satisfaction, I resolved to remove the bees, joining them to another colony, introducing a young vigorous queen and her train instead. To accomplish this I selected the middle of a warm day, carefully removed the stock to a little distance, inverted it, placing an empty hive above. A few taps caused the bees to ascend beautifully, and in a few minutes they were back in their new home on their own stand. I was very much chagrined on examining the hive to find the combs in a very shaky condition; and still more so, on placing it over the inverted skep containing the new tenants destined for it, to see the combs come tumbling down on the top of the poor bees, deluging them in a complete shower of liquid sweets—in plain English, a perfect mess. Another very weighty straw one I am too nervous now to raise from the board to ascertain its weight, as I fancy on making the attempt, I feel the contents twisting about—the precursor of another catastrophe.

An improved hive I promised to send to a friend ten miles off, which promise I dare not now fulfil. My weaker stocks would be much benefited by a change to the heath five miles away, but I will not trust them five yards.

The omitting supports in shallow moveable bar-hives for experimental purposes is all right enough; but in any stock-hive destined for work, the combs must and shall be supported in future, if of ordinary depth, by at least one good cross stick, and if very deep with two, so as to preclude me from being ever again placed in this pitiable fix with my hives' fixtures.—A YOUNG BEE-KEEPER.

APIARIAN NOTES.—No. IX.

LIGURIAN BEES.—I have to record another disappointment and failure in the attempt on my part to establish the Ligurian race in my apiary. On July 17th, I received from M. Hermann, through Messrs. Neighbour, a box containing a queen and some bees. They appeared somewhat weak and exhausted, but revived considerably on being opened, and on the removal of the sour, messy comb which had been enclosed with them. Having been uncertain as to the time the box would reach me, I had not prepared a hive for their reception by previously removing the common queen. This I at once proceeded to do; and after taking out every bar but one from an octagonal box, discovered her on the last comb—and a magnificent queen she proved to be. I never saw so large a quantity of brood in all stages in any hive before, and it was with no small degree of compunction that I disturbed the stock and removed such a queen from the colony. But I was resolved that the Ligurian mother should be at the head of a first-rate stock, and that every precaution should be adopted to command success in this my second attempt to cultivate the race.

The combs having been returned to the box, and the bees quietly settled, the cover of the little "cassette" was removed, a piece of large-meshed muslin substituted for it, and the box inverted over the aperture in the top of the hive. In this state they were allowed to remain until the following day, when I thought the bees must have become sufficiently acquainted with her presence, and the odour assimilated, so as to admit of her introduction among them without further delay. But being first desirous of ascertaining the safety of the queen, I lifted the little box, and to my great regret found her quite dead, her companions being still living and active. I could not be certain, but it seemed as if she had been stung by the "black bees" (as Hermann calls them), through the net. Although a dark queen, I think she was, most probably, a pure Ligurian, as I could make out the distinguishing signs of the reddish bands on the abdomen.

On the capture of the common queen, in the first place I put her in a tumbler on the top of an old hive which had been without a queen for many weeks, in consequence of my having driven out the bees to form an artificial swarm. In a few hours the perforated zinc was drawn out, and she was gladly received by the very few bees in the hive. About twenty-four hours elapsed from the commencement of the operations before the discovery of the death of the Ligurian queen; and in about the space of twenty-four hours more the bees were driven with but little trouble from the old stock, the queen captured, and again secured in a tumbler, this time over her own original people. Two of these individuals were admitted into the glass, and immediately attacked her with great fury, making it necessary for me to expel them instantly. In about six hours I withdrew the perforated zinc, and due homage was at this time assiduously rendered her, and she once more took her place at the head of her thriving colony. The hive (which has from the commencement of its existence been suspended from a salter's balance), exhibited a loss of 3½ lbs. in weight in consequence of the disturbance. During the temporary exile of the queen, it is probable that she made good use of her egg-laying capabilities in the black combs of the old hive, for since then the bees have manifested a very great increase in activity, particularly in the conveyance of pollen. I hope an artificial queen was the result of these manipulations, although the hive has been long doomed to destruction on account of its age.

MANAGEMENT.—In such a season as we have, and do still experience, I think it is important that all supers be promptly removed, and all the energies and strength of the bees confined to their stock-hive. Any combs containing unsealed honey had best be returned to them.

It is probable that wasps, where numerous, will be particularly annoying, and that robber-bees will be more than usually on the alert to gain an entrance into weakly-defended domiciles. Therefore, it will be well to use the precaution of contracting the entrances much earlier than usual. I fear that a nice swarm in a distant apiary of my own has been seriously injured, if not destroyed, by wasps, within the last few days, from my inability to visit it, and render the necessary assistance. With me all hives have been gradually diminishing in weight for some weeks past. I have, therefore, commenced the autumnal feeding, and expect (with seventeen hives), that it will prove a rather serious pecuniary affair this year, to say nothing of the trouble it will involve.—S. B. FOX, *Exeter*.

FEEDING BEES.

FINDING there is some difficulty among apiarians in obtaining a suitable food for bees at a moderate price, it may not be out of place to state that we are in a position to supply any quantity of really good honey at 45*s*. per cwt.

"ONE CURED OF APIMANIA" and others keeping bees will find the above a far more economical and acceptable food than sugar in any form that may be offered.—GEO. NEIGHBOUR & SONS, 127, *High Holborn*.

OUR LETTER BOX.

COMB OF DORKING HEN (*Chanticleer*).—We know that the authority to whom you refer does not object to the comb lopping over, and we admit that it is not a fatal objection to the bird when in the exhibition-pen; but when the lopping becomes excessive, as in the birds to which we referred, we think it materially detracts from the bird's beauty. We wish never to see it lop more than in the portrait of Capt. Hornby's Dorking hen given in "The Poultry Book."

DUCKLING LAMED (*B. S. P.*).—The lameness of the duckling arises from a strain caused by its efforts to get up when thrown over on its back. It will recover from it. The blister on the bill was made at the same time, and had the same origin. It will dry up and disappear. If it increased, we should advise you to puncture it.

LONDON MARKETS.—SEPTEMBER 3.

POULTRY.

The supply of poultry is far greater than the sales, prices are low in consequence. The demand for Grouse is on the decline. Quotations are not so high, but we have seen nothing to alter the opinion we formed at the opening of the season.

Each—	s.	d.		s.	d.	Each—	s.	d.		s.	d.
Large Fowls	4	0	to	4	6	Turkeys	0	0	to	0	0
Smaller Fowls	3	0	,,	3	6	Guinea Fowls	0	0	,,	0	0
Chickens	2	0	,,	2	3	Pigeons	0	8	,,	0	9
Geese	6	0	,,	6	6	Grouse	1	9	,,	2	9
Goslings	0	0	,,	0	0	Leverets	2	6	,,	4	0
Ducks	2	6	,,	2	9	Rabbits	1	4	,,	1	5
Ducklings	0	0	,,	0	0	Wild ditto	0	8	,,	0	9

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	SEPTEMBER 11—17, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
11	Tu	Carduus Marianus.	30.290—30.222	68—34	W.	—	31 af 5	22 af 6	morn.	26	3 36	255
12	W	Santolina maritima.	30.238—29.959	71—47	S.W.	·04	32 5	20 6	25 1	27	3 57	256
13	Th	Artemesia maritima.	29.748—29.614	61—40	W.	·42	34 5	18 6	54 2	28	4 18	257
14	F	Artemesia absinthium.	29.550—29.477	62—43	N.E.	·02	35 5	16 6	23 4	29	4 39	258
15	S	Artemesia vulgaris.	29.596—29.459	66—41	N.	·01	37 5	13 6	sets.	●	5 0	259
16	Sun	15 Sunday after Trinity.	29.478—29.439	66—50	N.E.	·07	39 5	11 6	8 a. 6	1	5 21	260
17	M	Artemesia cœrulescens.	29.888—29.662	66—36	N.E.	—	40 5	9 6	29 6	2	5 42	261

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 68.1° and 46.5° respectively. The greatest heat, 86°, occurred on the 12th, in 1858; and the lowest cold, 31°, on the 12th, in 1848. During the period 138 days were fine, and on 93 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Advantage to be taken of the present fine weather to stir the surface soil between the growing crops, and for carrying on a war of extermination against the weeds. *Cabbage*, prepare ground for the main spring crop; to be highly manured: the quarter on which Onions have been grown is very suitable for the purpose. *Cauliflowers*, do not let them stand too thickly in the bed. The thinnings to be pricked out into a sheltered border, and some into frames. *Celery*, the ground is now in good condition for earthing the plants; their perfection in a great measure depends upon the care bestowed on the operation and on its timely performance. *Lettuce*, make the last sowing for the season of the Brown Cos and Hardy Green on raised beds of light soil, where they are to remain till spring; to be then planted out to succeed those that are transplanted this autumn under walls or other sheltered situations. *Spinach*, thin the plants to about nine inches apart. If obliged to step in among them, loosen up the soil after the thinning is completed. *Turnips*, take the opportunity of thinning them as soon as they have made a rough leaf or two. Should slugs attack them, which is frequently the case at this season, sprinkle them with soot or lime two or three times a-week about nine in the morning. Follow up the practice of clearing away the remains of crops as they successively decay, and fill their places with winter stuff.

FLOWER GARDEN.

Continue to plant out Pinks, Clove Carnations, and rooted cuttings of herbaceous plants. Stir the surface of the soil amongst the plants in beds, to increase their health and vigour, and pick off all decayed flowers, to prolong their blooming. Plant the offsets of all choice sorts of Tulips as soon as convenient, choosing fine, dry weather for the operation. Pot Auriculas, if not already done. Remove suckers or offsets, and place them around the sides of the pot. Turfy loam, river sand, and very rotten horsedung are the best compost for them during winter. Look well to your composts, frequently turning them, and picking out wireworms and other such noxious vermin.

FRUIT GARDEN.

Continue to attend to the gathering of Pears and Apples as they ripen. Although we may feel grateful to tom-tit for his services in the destruction of insects, nevertheless he is now rather too mischievous among the Pears, topping and spoiling the fruit near the stalk. Give a final nailing to all wall trees to insure a more perfect maturation of the wood. Grapes out of doors are very late this season; every shoot of useless wood to be removed, and the branches to be laid in close to the wall. Where practicable, it is advisable to place a few spare lights against them, in the hope of having fine weather to ripen them. It will be an advantage to have the fruit-tree borders free and unshaded by any crop at this season.

STOVE.

Encourage the late growth of Orchids by topping up, by heat, atmospheric moisture, and a circulation of fresh air in favourable weather both night and day. Those going to rest to be accommodated with a more moderate temperature, plenty of sunlight, and air. The Euphorbias, Justicias, Poinsettias, Plumbagos, *Eranthemum pulchellum, Gesnera zebrina, Achimenes picta*, and other such stove plants, must now receive every necessary attention to get them into flower.

GREENHOUSE AND CONSERVATORY.

As the weather has now assumed a more favourable aspect, many may hesitate in housing the greenhouse plants while the prospect of a fine autumn is before them. It is hazardous, however, to trust anything to the weather at this period of the year. Where there is the convenience of partial protection many hardwooded plants may with advantage be allowed to stand out until the end of the month. Pot Violets, or plant them in a frame. Pot Hyacinths, Tulips, and other bulbs.

PITS AND FRAMES.

As we are surrounded with such a number of disturbing causes, it is hazardous to predict much about the weather; but still, with the lower temperature of the earth during the summer, it is probable that frosts may come upon us shortly, therefore no time should be lost in propagating and arranging plants in anticipation of such a visitation.

W. Keane.

KEW ARBORETUM AND PLEASURE-GROUNDS.

I am indebted to the liberal policy of Sir William Hooker, the Director-General of this national establishment, for permission to see the whole of the private portions under his direction—the two nurseries in which suitable trees are reared for supplying the public parks, and for nursing and proving all seeds and plants that are sent hither from all the temperate regions of the earth, and the demands of the establishment itself all over the park or pleasure-ground; also, the private grounds belonging to the "Queen's Cottage"—once a favourite resort of Queen Charlotte, and the garden of the late King of Hanover: together with an excellent practical guide to explain details, and show the way to see them to the best advantage. I had a longing desire to see all this since our friend the Doctor lost himself in the Woods and Forests, and, like the Laird of Cockpen, was ta'en up wi' the things of the State; and since we had no reliable source to guide our opinion on the way the public money was expended in this grand establishment—the pride of our country and the lamp to her path in the vegetable world—they may accuse me of partiality to this or that flower, to ribbon-rows or model beds, but I shall never put it in their power to say that this descendant of Ossian had ever written a line in a party spirit.

Another new row to the front of a ribbon-border is of itself worth a day's shooting at the beginning of September; and here it is, and now is the time to do it. My

guide is the godfather to it; I shall be the nurse and surety the first season, and you must do the rest. *Santolina chamæ-cyparissus* is the book name of the plant. Brotany was its name in Covent Garden a hundred years back—a corruption of Abrotanum—but Lavender Cotton is the name by which it is best known. It is a very dwarf, close-growing, silvery-looking plant; and little plants of it from summer slips and cuttings, like Wallflowers, will make the tidiest row yet thought of; and it will last good for use five or six years with the same kind and degree of management as is given to Box-edgings. It will look very much like *Cerastium tomentosum*, with only a tenth of the work to keep it to the mark after you have the proper number of plants. Another hit for the nurseries, who work for the million, a match bedder for Mr. Donald's sprig Lavender-bed at Hampton Court, and for *fastigiatas* in a bed of the *Crystal Palace* Lobelia, and so forth.

There are scores of specimen plants in bloom now in the Queen's Cottage grounds of the old *Ceanothus americanus*, white as the driven snow, from two feet to thirty inches high, and from thirty inches to a yard in diameter, quite fit for pots to go to the Crystal Palace Show; and no one hardly knows there is such a thing in Europe. It is the New Jersey Tea plant, which they used during the war of independence; and nearly as many of *Ceanothus intermedius*—a seedling from the last by the pollen of *azureus*, raised by Mr. Masters, of Canterbury. They thus grow and bloom in an open field-like situation, and not six feet above tide-mark. But there is a secret in the management. The plants are treated as half-shrubby, or suffruticose, and such like are cut down to the old wood, like Tea Roses when the frost is over; the tops of the shoots, with the seed-pods, are also cut in October, so that none but ripe wood is left for the frost to play on, and keep the sap in tune through the winter, to be cut back as above late in the spring. Thus managed, the last winter does not seem to have affected them in the smallest degree; and such blooming shrubs, coming in after the Spiræas for the autumn, should be held invaluable. *Hypericum proliferum*—as close as a clipped hedge, and in one mass of golden yellow all over, two feet high and as much through, and as easy to do as a Currant bush—should be in the front of all suburban evergreens, where it would bloom all through September and the first half of October. *Ligustrum japonicum*, or Japan Privet, is also one mass of white just now, and is an excellent dwarf evergreen without any of the common looks of a Privet about it.

What would you say to one thousand Aloes in blossom at one time, all from the seed of one sort, the *filifolia*, and turning out five or six kinds of blossoms, or ways of blooming them? Well, Mr. Williamson, who has the charge of all this, raised pretty nigh two thousand seedling Aloes of that kind four or five years back, and so many of them are now in bloom; and were it not that they all carry the thready character on the leaves, four good species might thus have their origin. The flower-stems run up from five to seven or eight feet high, some of them much branched, and some not so at all, and some between both extremes; some with round ball-and-cup florist flowers, and some with botanical starry petals—in short, in all the various ways of the sporting mood. A thousand even of these, at the age of five years, would give a shilling a-year for rent and labour cost, at the nursery price of 5*s*. per flowering plant; for it is a poor trade in five-feet bloom-spikes, or four feet in bloom of a seven-feet spike, that could not command that moderate price. One thousand five-shilling pieces are what my boasted seedlings never brought me in all my days.

In the private home nursery here has been proved that the *Cupressus macrocarpa* and *C. Lambertiana* come up indifferently from the same packet of seeds, yet the two are as distinct in all their looks and ways as any two related species in the family. Let no one who loves beautiful-looking trees go with the idea that if he or she has a *Lambertiana* Cypress only, or a *macrocarpa* "by itself," that he and she have all they ought. *Macrocarpa* is an upright and more close-growing sort, with a deeper green than *Lambertiana*. There is a valuable sport of *Cupressus Goveniana* from seeds here, which is as weeping as a Willow, whether it be of Babylon, or of English, or Scoth, or American origin, for there are three such weeping ones; but the American Weeping Willow, which makes such beautiful standards at Kew, ought certainly to be Scotch, for the whole thing is but the "Packthread" Willow of the Scotch packers weeping for its native freedom; whereas the Kilmarnock Weeping Willow is a bold, broad, and Plum-like-leaved sad variety of *Salix caprea*, the Goat-nibbled Willow. At all events a match pair of standards of the American Weeping Willow would look exceeding well down at the bottom of your garden, and the pair of the Kilmarnock pendulums just where you wanted something the winter before last. As to the weeping *Goveniana* Cypress, it will have to go through the fiery trial of excessive propagation in the nurseries ere any of us can venture a risk on it.

In this home-nursery are very many curious revelations, besides an enormous stock of good things for all parts and departments of the pleasure-ground and arboretum—trees of all kinds, shrubs the same, climbers, twiners, creepers, trailers, under and upper clothings for hills and valleys and plains. Sowings, layerings, graftings, buddings, cuttings, and every other species and variety of propagation, go on here without any of us being the wiser; and then when an acre is, or ten or twenty acres are, to be fresh planted, instead of going to the "board" for money to buy the plants, the plants are there at hand, and in a style more suitable for anxious planters than the style of some people in some parts of the world. Whole ranges of turf-pits behind, and double ranges of glass-pits in front of them are now brimful of reason, law, and logic, and no one is the wiser of it beyond the garden boundary. The quantities of cuttings that I saw at work would be sufficient for all their flower-beds, if the kinds were suitable, which they were not. When you asked, some time ago, what evergreens would come from cuttings here, they would or could tell or ask you which would not, for they knew none that would not; but some of which would not pay that way, and their great aim is to get every morsel of a thing to pay, and to pay such per centage as few aspire to obtain. I was so taken to by their logic for making things paying, that I got a statement drawn up for me of the numbers, and their heights and size of all the park trees in their park "Place" nursery, before we left the home one, on which we are now engaged, and if there is sufficient room at the end of my tale, you shall see all the figures and judge for yourself. Meantime we must have out with some of their secrets in those ranges of pits. In the first place are thousands of cuttings, all in pots, of all manner of evergreen shrubs and bushes, nothing seems to escape them that way save Arbutus, Cedar, Pines, and Firs—not but what they could strike them also, but then the time and cost would not pay; there would be no value for value, and nothing from percentage; but every pod and berry, and every seed and stone and downing in the way of a seed, be the plant old or young, or middle aged, in the progress of our importations of the kind, is saved and sown for some purpose or other, if only to see which is which, or which will or will not come true to kind, or go back to another kind in any of the steps by which itself has progressed here from its own Adam or its Adam and Eve. For, you see, this Mr. Darwin has made a wonderful impression by his notions of how plants came first into being, and how such beings could hold on for so many ages; or if they or some of them did not hold, what was the next step; then how that step also was secured, and if not secured, what next and next. They have laws, reason, and

logic for all this, and for ten times as much; and ten to one if some of us be not drawn from our own conclusions by that logic—and the logic of facts is the hardest of all to bear up against.

One very curious fact is, that in one of these sowings, which was from a flat-headed white-flowering flower-headed Spiræa called *corymbosa* (a corymb is a flat flower-head, be it white or otherwise), very few seeds were in that corymb, and only four of them came to the flowering mood; but one of the four is the actual *Spiræa Nobleanum*, which Mr. Noble, down at Bagshot, who first got it from seeds, Mr. Donald, of Woking, the next batch, and Dr. Lindley, believe to be a cross-bred plant between Thunberg's *Spiræa callosa* and *S. Douglasii*, or Dr. Planchon's *Spiræa Fortunii* and *Douglasii*. But as Dr. Planchon knows the origin of many continental species and of some few genera of these parts—having just been their origin and omniparent himself, if there be such a word—we shall hold to this side of the species *callosa*, and explain that it is a native of Japan and China; while *Spiræa Douglasii* comes from the north-west side of North America, on the opposite shore of the great Pacific. There is nothing peculiar about the crossing of these two plants in two English nurseries; but is it not strange that Sir William Hooker should have received a sprig of the new seedling from the new world before it originated in the old one, as certainly he did? and still more strange that *corymbosa*, with a flat head of white flowers, a native of Virginia and other southern states, should produce a seedling identical with *Nobleanum* in Kew arboretum? That it did so the Floral Committee can testify; for I took a bit off the Kew plant for them to see at the next meeting after our unanimous award to Mr. Noble for his namesake seedling. All the logic on earth, therefore, will not be able to show the origin of *Spiræa Nobleanum* to have been from the influence of pollen. I said already there were beds of all the three in the pleasure-ground at Kew for the million; and every one who has room for a bed of each, or for only one plant of each, will never repent buying them—that is, *Nobleanum*, *Douglasii*, and *callosa*; also the two old ones called *bella* and *ariæfolia*. A most unworthy cry was raised against Dr. Lindley three years back for writing up the value of *callosa* higher than some would like to go; but he did not write a syllable too much in its praise, and his critics are now confounded. If I am not out in my glasses, however, the Doctor and Mr. Gordon went wrong in their identity of the *Chamæcyparis* something from Mexico, which was keenly canvassed for in one of the first ballot ventures of the Horticultural Society. One of the original stock from Chiswick was in a turf-pit here, carrying indelible marks of being a Biota after all—that is, an Arbor Vitæ, instead of a white Cedar. Just look to it, and see how yours turn out.

There were lots and lots of pretty little plants of an Abies, which some one called *Williamsonii*, of which Dr. Newbury sent seeds, and these plants are from them, and are just as like *Abies Mertensianum* as two Peas are to one another. Mind, these two new Conifers are, or probably may be, but one kind after all; but a very beautiful, with much of the look of *Abies canadensis*, but quite different and well worth a round sum to begin with. *Araucaria imbricata* coming up freely from seeds, lately put into broad pans of sandy loam in cold frames; the narrow end of the seed pressed into the mould, leaving the one-half of the seed not covered, which is also the right plan with Deodar seeds. Some thousands of the Mount Atlas Cedar, from three to four feet, in an open quarter of the nursery, are coming away as freely, and with strong leaders, more like Deodars than the slow movements of the young of the Cedar of Lebanon, from which this is quite distinct from the seed-pans upwards; and I should judge it, therefore, preferable to the Cedar of Lebanon for planting out in all parts of the British isles.

The pinetum here is not yet old enough for one to judge correctly of the relative value of the new and more scarce kinds. *Pinus macrocarpa*, eight years planted, lost its leader the first season, and without any assistance went off with a fresh leader, and is now twelve feet high, after a leader or a growth of eighteen inches last season. I once saw a cut-down section through the pith of a common Spruce, when it lost its leader many years back, in which the pith took a beautiful curve to adapt itself to the new leader. *Pinus insignis* and *Pinus radiata*, side by side:—do not yet decide which is which, *radiata* seems the freer grower of the two! It will turn out, however, that if there is any difference between them, they will make it up some day or other and prove themselves alike. A variegated Scotch Fir is the first of the kind I have seen. *Pinus Jeffreyii* seems intermediate between *Sabiniana* and *Benthamiana*, with a strong habit and greyish look. *Pinus muricata*, 12 feet to 15 feet high, in fruit for the fourth time, and is the worst of all the race for the ravages of the Pine grub. *Pinus Fremontiana*, a slow, stingy grower, and very odd-looking customer, having the leaves single, or mostly so, and looking like Gorse leaves or prickles, more than those of a Pine. But here we fell on a collection of *Tom Thumb* Pines, the very thing I have been looking after these twenty years. These are the Conifers for the edges of a small lawn, and for children to run amongst and to jump over them till their heads get dizzy at the sport. I wish there were dwarf kinds of all the family for this very purpose, for boys who can jump over trees high as themselves will never find any difficulty in conjugating a verb in any language. The *Toms* began with *Laricio pygmæa*, a very pretty little thing. *Strobus nanus* equally so. *Strobus compactus* much like it, and *Strobus umbraculiferus* a real gem of a bush Pine. Then *Abies excelsa Gregorii*, probably from Elgin or Forres, where the name is well rooted, and another dwarf *excelsa*, but not so dwarf as the last, which was had from Knight and Perry without a name, and, probably, is the *elegans* of their "Coniferous" book, because it is the most elegant of all the dwarfs, and about four times bigger than *Clanbrasiliana*. Here, also, is *Abies Mertensiana*, a beautiful dwarf from necessity, from being frost-bitten, but is a beautiful thing when the new growth comes again; and *Abies Brunoniana* is much in the same way, and the Chusan Palm by their side was much pinched last winter. But death or starvation will never be felt here, for the nursery is not a stone's throw off, and can turn them out by the hundreds after any severe encounters with their natural enemies.

There is yet one strange thing about the origin of species in that nursery. Seeds saved from the finest specimens of the Oriental Plane tree in these gardens produced three or four seedlings, which are yet identical in the essential characters with the occidental species; but as that belongs more to public park trees, for which I have no room left, I shall pass it to another opportunity.

A very marked kind of *Cupressus* from Messrs. Hill & Godfrey, of Knap Hill, and called *glauca*, was quite new to me. It seems one of the sturdy slow-growers, very dense in foliage, and growing round and round, as if it were after the manner of a Screw Pine. Who is able to give its biography?

That most curious thing called *Colletia Bictonensis*, and which is said to have originated in the arboretum of Lady Rolle, I have heard upon good authority to have had a very different origin as a wild species, and that it was published years ago by Sir William Hooker as *Colletia cruciata* from a dried specimen; but I forgot to ask about it, although I met both Sir William and Dr. Hooker in this ramble. But being in the curious mood just now, I may tell a very curious thing—and that is, the fact that the large Convolvulus of our hedges, the *Calystegia sepium* of botany, is found in all parts of the temperate regions of the earth. Dr. Hooker told me he saw it in Chili, in Australia, and in all such places over which he

travelled; and I want the red-flowering variety of it to mix with my own reversion of *Calystegia pubescens*, the prettiest of them all. That the Chinese had originally converted that free and single form by their dwarfing system to the double, ragged, rapscallion form in which Fortune found it is now evident, and I was pleased to hear both Sir William and Dr. Hooker acquiesce in that view of the origin of *Calystegia pubescens*.

Tasmannia aromatica is all but hardy at Kew, and seeding freely, the seedlings looking Arbutus-like. *Skimmia japonica* hardy as a Spurge Laurel, and seeding freely enough; the seedlings up in a fortnight when sown as soon as ripe, and 500 of them there to prove the fact. *Clethra arborea*, old as the hills coming into bloom; and *Itea virginica*, of equal date, in full bloom before it. Put all these together, and they make a respectable batch for blooming in the autumn in front of all our shrubberies. A large bed of white Moss Roses on their own roots, looking as healthy as young Perpetuals, is a sight one seldom sees; but all the Roses are preferred there on their own roots on their light soil over a deep gravel bed, and large batches of all our Lilacs from seeds may prove the origin of some of them, and something else to the bargain. D. Beaton.

MONSTER FUCHSIA.

I enclose a bloom of Fuchsia *Duchess of Sutherland*, which I think is a monster. It grew on a weak shoot at the bottom of a plant, four or five years old, about three feet high.—Henry Wright, *Gardener, Herringswell House, Mildenhall.*

[This is a most remarkable instance of monstrosity, or monstrous sport, which is of the class called cockscomb sports. The flower-stalk is flattened, and is over half an inch wide at the insertion of the berry. The berry is also flat, and three-quarters of an inch wide across the centre. The style is flat, and full half an inch wide, with a cockscomb stigma three-quarters of an inch wide. The tube is partially flattened, and of the usual length, but more than double the common size. The sepals are fifteen in number, and of the usual shape and size. The petals are also fifteen in number, but of the usual size; and to make room for them each petal is folded back on its edges. The stamens and anthers are of the usual form and size: the former are inserted immediately at the mouth of the tube, and are thirty-five in number. The pollen seems good, and it is to be regretted that the flower was not fertilised and got to seed. The next best chance in such cases would be to cut down the head of the plant at once to the branch which produced the sport, also any branch or branches below it, and to keep the plant under the same conditions as now for as great a length of time as possible, or at the least till next blooming time—that is, to keep it in the same pot, and not give it any stimulus during the whole time from this autumn till next May or June, but to have it half dry in a cool place all the winter; and when it begins to push again to keep it as cool as it will bear without hurt, but of course to keep it from frost. There is a reason for this deviation from the natural type if we did but know it. Nothing is produced in nature by chance. There must be some disturbance in the balances which hold the powers of reproduction in all organic life before a departure can take place from the normal condition; and whatever the amount of the disarrangement of the powers of reproduction, or the cause of its origin, we may assume it to be capable, in some degree, of being retained in plants for a certain period by the manipulation of the gardener.]

Horticultural Society.—A special general Meeting of this Society was held at the Office, 8, St. Martin's Place, Trafalgar Square, on the 4th inst. C. Wentworth Dilke, Esq., Vice-President in the chair. The Meeting was convened for the purpose of electing a new Member of Council in the room of the late Rev. L. Vernon Harcourt, and also for the election of various candidates who had been proposed as Fellows. The Right Rev. the Lord Bishop of Winchester, who had been recommended to the Fellows by the Council to fill up the vacancy, was balloted for and unanimously elected a Member of Council. The following candidates were afterwards balloted for and elected Fellows of the Society:—Mr. W. Baxter, Mrs. J. A. Beaumont, Mr. Thomas Castle, Rev. James Cook, Mr. James Cuthill, the Lord John Manners, M.P., Mrs. Moffatt, the Lady Adeliza Norman, Charles Rickards, Esq., his Grace the Duke of Rutland, Charles Jasper Selwyn, Esq., M.P., Q.C., the Earl Somers, the Lady Louisa Wells.

CHRONOLOGY OF STRAWBERRIES.

In what year were the following Strawberries raised or sen out for the first time? *Elton Pine* (Knight), *Eleanor* (Myatt), *British Queen* (Myatt), *Cole's Prolific*, *Bicton White Pine Grove End Scarlet*, *Queen Victoria* (Myatt).—F. G.

[*Elton Pine* was raised by Mr. Knight about 1819, and was distributed by the Horticultural Society. *Eleanor* was sent out by Mr. Myatt in 1847, and *British Queen* in 1841. *Cole's Prolific* was sent out by Mr. Cole, of Wellow, near Bath, in 1846. *Grove End Scarlet* was raised in 1820, by Mr. Atkinson, of Grove End, near London, and we believe distributed by the Horticultural Society. There is no Myatt's *Queen Victoria*. The name is sometimes applied to *British Queen*. Mr. Wilmott, of Isleworth, sent out a *Queen Victoria* which proved to be the same as *Elton Pine*.—Eds. C. G.]

THE SCIENCE OF GARDENING.

(*Continued from page* 342.)

Despite all the contrivances for rendering more effectual the natural sources of temperature offered by our climate, these can never obtain during the twelvemonths, by night as well as by day, a heat sufficient for the successful cultivation of most tropical plants. Hence arises the necessity for employing hothouses and other shelters of that description. In these, fuel has to be employed to elevate the temperature, and some transparent medium as a covering, to prevent the radiation of the heat thus obtained, as well as to shut out the colder atmosphere without excluding the light. But few words will suffice relative to the fuel employed, this being so generally coal; yet there are some facts ascertained by the chemist which afford guides to the gardener in the selection of his fuel, as well as tests to enable him to judge whether he employs it economically.

The heating quality of some of the different coals known in Great Britain are in the following proportions:—

Scotch Cannel	199
Lancashire Wigan	196
Yorkshire Cannel	188
Newcastle (best Wallsend)	169
Gloucestershire (Forest of Dean)	108
Welsh (common)	25

Hence, if the Scotch Cannel coal cost 19*s*., when the Gloucestershire could be had for 10*s*. per chaldron, the latter would be no cheaper; for the heating power of the first is as 199 to 108 of the latter. In other words, 108 chaldrons of Scotch would afford as much heat as 199 chaldrons of Staffordshire.

The following are the quantities of the fuels named, required to heat eight gallons of water from 52° to 212°:—

	lbs.		lbs.
Caking coals	1·2	Wood of Service	3·00
Splint, or hard coal / Cannel coal	3·13	„ Cherry	3·20
Cherry, or soft coal	1·5	„ Fir	3·52
Wood of Lime	3·10	„ Poplar	3·10
„ Beech	3·16	„ Hornbeam	3·37
„ Elm	3·52	Peat (average, not compressed)	7·6
„ Oak (chips)	4·20	Charcoal of wood	1·52
„ Ash	3·50	„ peat	3·28
„ Maple	3·00		

The specific heat of water being 1, and that of atmospheric air 0·00035, or 1-2850th, if the quantity of fuel which will heat a cubic foot of water 1° be multiplied by 0·00035, the product will be the quantity of fuel required to heat a cubic foot of air 1°, and twenty times that quantity will heat it 20°, thirty times will heat it 30°, and so on. Now 0·0075 lbs. of best coals will heat a cubic foot of water 1°; therefore, 0·000002625 lbs. of coal will heat a cubic foot of air 1°.

It is essential to good and profitable fuel that it should be free from moisture; for unless it be dry, much of the heat which it generates is consumed in converting that moisture into vapour; hence the superior value of old, dense, dry wood, to that which

is porous and damp. A pound of dry wood will heat thirty-five pounds of water from 32° to 212°; but a pound of the same wood in a moist or fresh state will not similarly heat more than twenty-five pounds. The value, therefore, of different woods for fuel is nearly inversely as their moisture; and this may be readily ascertained by finding how much a pound weight of the shavings of each loses by drying, during two hours, at a temperature of 212°.

The above are the average of results obtainable in a common, well-constructed furnace. By a complicated form of boiler, perhaps, a small saving of fuel in obtaining the same results may be effected; but it will be found, generally, that the original cost of apparatus, and the current additional expenses for repairs, will more than exceed the economy of fuel.

Flues for imparting heat to hothouses are, for the most part, superseded by either tanks or hot-water pipes; but where retained, the top should be formed of iron plates, these admitting the heat most readily into the house, and, consequently, requiring a less consumption of fuel. If it be desirable to have a covering for the flues that will retain the heat longer, as when the fires are made up at night, this may be readily accomplished by putting a row of the thick square paving tiles on the top of the whole length of the flue an hour or two before the houses are finally closed.

Hot water in a tank is superior to the same source of heat in pipes, because it is not liable to freeze; and it is preferable to steam, because its heating power continues until the whole mass of water is cooled down to the temperature of the house; whereas steam ceases to be generated as a source of heat the moment the temperature falls below 212°.

If steam be employed, Mr. Tredgold has given the following rules for calculating the surface of pipe, the size of the boiler, the quantity of fuel, and the quantity of ventilation required for a house 30 feet long, 12 feet wide, with the glass 4 feet high in front; vertical height of the glass roof 8 feet; length of the rafters 14 feet; height of the back wall 15 feet. The surface of glass in this house will be 720 feet superficial—viz., 540 feet in the front and roof, and 180 feet in the ends. Now, half the vertical height, 7 ft. 6 in., multiplied by the length in feet, and added to $1\frac{1}{2}$ time the area of glass in feet, is equal to the cubic feet of air to be warmed in each minute, when there are no double doors—that is, $\overline{7{\cdot}5 \times 30 + 1\frac{1}{2} \times 720} = 1305$ cubic feet. But in a house with wooden bars and rafters, about one-tenth of this space will be occupied with wood-work, which is so slow a conductor of heat, that it will not suffer a sensible quantity to escape. Therefore, 130 feet may be deducted, leaving the quantity to be warmed per minute = 1175 cubic feet.

To ascertain the surface of pipe required to warm any given quantity of air, multiply the cubic feet of air to be heated per minute by the difference between the temperature the house is to be kept at, and that of the external air in degrees of Fahrenheit's thermometer, and divide the product by 2·1, the difference between 200, which is the temperature of the steam pipes, and the temperature of the house; the quotient will be the surface of cast iron pipe required.

Now, in the house, the dimensions of which are above given, if the lowest temperature in the night be fixed at 50°, and 10° are allowed for winds, and the external air is supposed to be at zero, or 0 of Fahrenheit, then 1175 multiplied by 60°, and the product divided by 2·1, the difference between 200 and 60, will give us the quotient 236 = to the surface of pipe required. Now the house being 30 feet long, five pipes of that length, and five inches in diameter, will be about the proper quantity.

If hot water be employed instead of steam, the following proportions and information, obtained from Mr. Rendle, may be adopted confidently as guides. In a span-roof propagating-house, 40 feet long, 13 feet broad, 7 feet high in the centre, and 4 feet high at the two fronts, having a superficial surface of glass amounting to 538 square feet, Mr. Rendle has a tank of 83 feet long, running round three sides of the house, 4 feet wide, and about 8 inches deep; and, consequently, capable of containing nearly 300 cubic feet of hot water, though only half that quantity is used. This is closely approaching to the size pointed out according to Mr. Tredgold's formula. The mean temperature of a hot-water tank will never be much above 160°; so that, for the sized house mentioned by that skilful engineer, the divisor must be 2·1 times the difference between 160° and 60°, which gives as the quotient 335 cubic feet.

The tank in Mr. Rendle's propagating-house is built of bricks lined with Roman cement; and if the temperature of the tank at the time of lighting the fire be 90°, the temperature of the atmosphere of the house 67°, and the temperature out of doors 50°, the quantity of small coal, or breeze, required to raise the temperature of the water to 125° is 28 lbs. In twelve hours the water cools, after the fire has been extinguished, from 125° to 93°.

When steam is employed, the space for steam in the boiler is easily found by multiplying the length of the pipe in feet, by the quantity of steam in a foot in length of the pipe.

Interior diameter of pipe in inches.	Decimal parts of a cubic foot of steam in each foot of pipe.
1	·00545
$1\frac{1}{2}$	·01225
2	·02185
$2\frac{1}{2}$	·034
3	·049
4	·0873
5	·1363
6	·1964
7	·267
8	·349
9	·442
10	·545

In the above-noticed house, the length of pipe, 5 inches in diameter, is 150 feet, and these multiplied by 1·363 = 20·5 cubic feet of steam; and as the pipe will condense the steam of about one and one-third cubic foot of water per hour; therefore, the boiler should be capable of evaporating $1\frac{1}{2}$ cubic feet of water per hour, to allow for unavoidable loss. In the extreme case of the thermometer being at zero, the consumption of coals to keep up this evaporation will be $12\frac{3}{4}$ lbs. per hour.—(*Tredgold on Warming and Ventilation.*)

These calculations are all founded upon the supposition that the condensed water is returned to the boiler whilst hot; but if this cannot be effected, then one-twelfth more fuel will be required. The boiler for the supply, either of steam or hot water, should be covered with the best available non-conductor of heat, and this is either charcoal or sand. A case of brickwork, with pulverised charcoal between this and the boiler, is to be preferred to any other. A boiler having a surface of 70 feet exposed to the air in a temperature of 32° requires an extra bushel of coals to be consumed per day, to compensate for the heat radiated and conducted from that surface; and the smaller the boiler the greater is the proportionate waste.

The smaller the boiler and the fireplace, compatible with efficiency, the greater is the economy. We can tell the gardener, also, most decidedly, that the total size of the boiler has nothing to do with that efficiency; the only point to be secured is, *that a sufficient surface of the boiler be exposed to the fire.* The following table shows the amount of boiler surface which must be exposed to the fire to heat given lengths of pipe, respectively 4 inches, 3 inches, and 2 inches in diameter:—

Surface of boiler exposed to the fire.	4-inch pipe.	3-inch pipe.	2-inch pipe.
	ft.	ft.	ft.
$3\frac{1}{2}$ square feet will heat.	200 or	266 or	400
$5\frac{1}{2}$ " "	300 "	400 "	600
7 " "	400 "	533 "	800
$8\frac{1}{2}$ " "	500 "	666 "	1000
12 " "	700 "	933 "	1400
7 " "	1000 "	1333 "	2000

To prevent the scale, or limy crust in a boiler, which is often so troublesome, dissolve in the water at the rate of one ounce of sal ammoniac (muriate of ammonia) to every sixty gallons. Do this twice in the year; as, in October and April.

The surface of the pipes should be painted black, because surfaces of this colour give out more heat in a given time than any other.—J.

(*To be continued.*)

Gardeners' Fête at Paris.—On the 30th of August was the fête of the gardeners, whose patron is Saint Fiacre—a rather strange selection, when we remember that a gardener and a coachman are generally considered to have little in common, except in families whose desire for gentility outruns their means. However, the coachmen have something to do with the matter

for the number of *fiacres* employed to convey the disciples of Virtumnus and Pomona to the rendezvous is anything but small. On the present occasion a grand choral mass was performed at the church of Passy, and the fête took place on the islands in the lake of the Bois de Boulogne. One of the chief ingredients in the procession was, as usual, what may be literally termed a cart-load of flowers, or, more elegantly, a gigantic bouquet containing thousands of blossoms most tastefully arranged, backed by a mass of beautiful evergreens and other foliage, the whole placed in a colossal vase. On one of the islands in question was a tent surrounded by Venetian masts and gay streamers, and arranged to accommodate 300 persons at dinner; on the other island was a ball-room of still larger dimensions. Unfortunately, it rained during the whole day, but that fact did not prevent a full attendance—gardeners are accustomed to all kinds of weather—nor did it cause the dancers to leave for home till old Sol informed the company that it was time to throw off varnished boots and white neck-ties and assume the hoe and the pruning-knife. The feast was headed by the chief gardener of the Bois, who was supported by nearly all the dignitaries of the profession, while the female portion of the company was declared to be a collection of choice blossoms.—(*Daily Telegraph.*)

PURPLE ORACH AT TRENTHAM.

In reference to the laudatory remarks at pages 324 and 325, respecting the purple Orach at the Crystal Palace, I am much pleased to find such a high eulogium has been passed upon it by such a critic in the flower garden as Mr. Beaton. For his information and others, I may state that the Orach has been cooked here for several years by my predecessor, Mr. Fleming, not only as a novelty, but as an indispensable dish, having taken many prominent positions throughout the garden here, and has now become a dish for every cottager in this neighbourhood.

For ribbon-borders it is all that the most sanguine could desire. We are growing it here by the hundreds of yards. Allow me, therefore, to make a few remarks respecting its culture. Sow in the first week in May, pinch when nine inches high, and at every joint afterwards during the season, as much of its beauty depends upon this. By so doing, at this date, August 31st, it is not more than fifteen inches high, and one solid mass of the richest purple imaginable, and is now the most important feature in the flower garden. There is no plant that I am acquainted with half so accommodating. Its usual height being from six feet to seven feet, and not over-prepossessing when allowed to run to seed. Such being the case, do not attempt saving seed in the flower garden, but in some place of less importance. When allowed to grow without pinching, its colour becomes that of the Perilla—a hard bronze, instead of the rich, soft purple which the young foliage produces.

When sown in the autumn, as recommended by a celebrated author, it gets too far advanced with the short period of its existence, and is in perfection the early part of June, and is arrayed in its winter garb when all around are clothed in their richest splendour. Consequently, the rich, soft purple has given place to that of less pretentious—viz., maturity. I purpose sending seed to the Experimental at Surbiton, where I hope it will be sown by the superintendent himself at Michaelmas in the present year, and the first week in May following, and the future results carefully jotted down, and that in due time he will give us, the readers of The Cottage Gardener, the benefit of his experiments and experience. Notwithstanding what the prince of gardeners has written on the subject, we shall, in all probability, read from the pen of Mr. Beaton before twelve months have gone—sow in May.—A. Henderson, *Trentham.*

STUNTED ARAUCARIA.

A friend of mine has an *Araucaria imbricata* from twenty feet to thirty feet high, which for many years was one of the most vigorous in Devonshire. On visiting him the other day I regretted to see the extremity of its branches decaying, and found that they were covered with a slate-coloured lichen. Can you inform me if this be the cause or the result of disease, and what is the remedy? The ground appears to be well drained.

[The last three or four summers were so dry that full grown Elms, Oaks, Horse Chestnuts, and others of the hardiest trees suffered much in the same way as that Araucaria—that is, from extreme dryness in the subsoil, whence the great supply of summer nourishment is mainly derived by the deepest roots. Let us hope the first yard in depth of the surface of this island is now well soaked through—we know it is not in some upland slopes—and that free growth will return in consequence to the Araucarias. Meantime it would pay to examine for the extent of the roots, the depth they have attained, and the state of the soil about them. In his reports of Hampton Court, Mr. Beaton has shown how about a hundred of very old Yew trees, which were dying by inches there for the last thirty years or more, have been brought round to look as healthy as ten-year-old plants. The surface all over the roots is cultivated as for corn crops, and covered with flowers; but any covering would do just as well.]

WHAT TO LOOK FOR ON THE SEASHORE.

(*Continued from page* 329.)

Echinodermata (*Continued*).

Before entering into a detailed account of the various creatures composing this interesting class, it will be advisable to take notice of some further generalities applicable, more or less, to all of them. It is also necessary to devote more time and attention to the Echinoderms than to the other classes of Radiata, inasmuch as that they are of so much more importance from their rank in the scale of organisation. It has been doubted, and is still very uncertain, whether the Star Fishes have, or have not, any special organs of sense; that of touch, however, is evidently exercised by the motive organs, which are also employed in the capture of prey, and certain red spots are observed, situated on the upper surface of Sea Eggs, and at the extremities of the arms of Star Fishes, which have been denominated eyes, whether or not with any degree of correctness has yet to be decided.

The Echinoderms generally act the parts of sea-sweepers or scavengers, crawling about at the bottom of the sea, carefully seeking and voraciously devouring any particles of carrion or offal which they may be fortunate enough to come across, and by this operation are supposed to render a beneficial service to the water generally, keeping it free from such noxious matter as might otherwise exercise a baneful effect on other denizens of the deep. Independently, however, of this unscrupulous mode of feeding, it is said that the Star Fish has a remarkable liking for shell-fish; and it was once looked upon as so dangerous a rival to man for this luxury, that by an old law of the High Court of Admiralty, any person meeting with a "Five-Finger" on the coast, and neglecting to destroy it, rendered himself liable to a penalty. The way in which a "Five-Finger" contrives to provide itself with a delicacy in the shape of an oyster or other bivalve is very singular. This creature is destitute of teeth, but has the faculty to turning its gullet and stomach completely inside out, in the form of great vesicular lobes, which can insinuate themselves into very narrow apertures. When, therefore, the animal falls in with an oyster, and is disposed to regale itself therewith, it seizes and holds it fast with its powerful and closely-clinging rays, and, no matter how violently the waves may dash it to and fro, it never for an instant relaxes its tenacious grasp. Presently on finding a spot where the valves slightly gape, the "Five-Finger" pouts out its pliable stomach, and, gaining access by the minute opening, it manages to dilate itself within the shell, and so devour the succulent animal within, or, at all events, to extract all the nutritious juices of its body. This process is supposed to be assisted by the emission of a poisonous fluid secreted by the lobes of the stomach. This corresponds with a similar faculty attributed to the Anemones; but it is only a matter of conjecture in either instance.

The digestive organs of the Echinoderms are very much superior to those of other classes of Radiata. They all have a distinct intestinal canal, generally furnished with two orifices, one for the reception of food, the other for the discharge of fœcal matter. There is a variation, however, in different species as to the situation of these orifices. The worm-like Echinoderms, as the Sea Cucumbers, and many Sea Urchins, have them at opposite extremities of the axis of the body; whereas, in other groups both are placed on the lower surface. The arrangement of the intestine is also subject to great variation. In the Sea Cucumber it is bent twice upon itself, and presents a formation somewhat resembling the letter S. The mouth of the Star Fish opens directly into the stomach, which is surrounded by smaller sacs occasionally branched, and extending for a considerable

distance into the arms. In the Sea Egg again, the intestine is very much elongated, and winds round in the body. Some of the Sea Eggs are furnished with a strangely complicated masticating apparatus which has been frequently described under the denomination of "the lantern of Aristotle." It consists of a curious framework of calcareous pieces, shaped somewhat like the Roman numeral V, which are furnished at their anterior extremities with five hard triangular teeth. The creatures possessing this apparatus feed principally upon vegetable matter; those on the contrary which are destitute of masticating organs are dependent for the greater part of the food upon minute Crustacea and other marine animals, the shells of which may be frequently found in their intestines. The organs of motion are very similar throughout the whole class, and consist of a multitude of small feet, which are protruded through certain apertures left for the special purpose in particular plates, and through the interstices of the calcareous pieces composing the case of the animal. The structure of these minute organs is curious and interesting. They appear to be, when in a state of perfection, vermiform tubes, having at the extremities a distinct sucking disc, which is kept stretched to its peculiar form by means of a small calcareous ring. These tubes communicate by their apertures with small vesicles holding fluid, and situated beneath the shell; and it is by the contraction of these vesicles, and the consequent propulsion of the fluid into the cavity of the tubes, that the extension of the feet is effected. The walls of the feet are composed of two muscular coats—an inner longitudinal one, and an outer one circular. It is by the peculiar action of these that the feet are enabled to move about in the water, when seeking an object to attach themselves to. The longitudinal coat is also brought into action for the purpose of contracting the foot, as soon as the relaxation of the corresponding vesicle allows the fluid to flow back from the cavity of the tube. Whereupon, if the terminal sucking disc be attached to any fixed object, the body of the animal is naturally drawn in the direction of such contraction. It requires, however, the combined and simultaneous action of a number of these small motive organs in order to move a Star Fish or a Sea Egg, the animal being of a size so utterly disproportionate to the diminutive feet on which its locomotion depends. It is very interesting to watch one of the creatures in motion. The little suckers are seen extended in every direction, looking like semi-transparent threads. Presently one attaches itself, then another, then another, until at last the contraction of a number of them together suffices to drag their unwieldly proprietor a step onwards. By means of these organs the creature can climb up glass, and will adhere so firmly that it may be broken off, leaving its limbs clinging to the surface. All Echinoderms have a distinct apparatus for circulation, which consists of an organ corresponding to a heart, and an intricate system of vessels.

It may be remarked that the order which includes the Star Fishes is very extensive, and comprises many species in which may be observed a gradual obliteration of the rays and a corresponding development of the body or disc. This change takes place by the filling up of the angles between the arms until the creature alters its character of five-fingered, assuming a five-sided outline. The "Bird's-foot Star," an elegant British specimen, will serve as an illustration of this form. From this condition may be easily imagined the disappearance of the angles also, as in some species—the sides becoming progressively convex until the creature assumes a nearly orbicular figure. Such is the aspect of a rare specimen of Echinoderms, called "the Cake Urchin."

After a few words on their mode of generation we shall proceed to the examination of particular members of the family. The egg on impregnation becomes converted into an embryo of a globular form furnished with cilia, which presently breaks through the shell, and swims about freely in the water. This soon changes into an irregular hexahedron, which, gradually increasing in size, forms at last a four-sided pyramid. There is an opening in the centre of the base of this pyramid, which is the mouth, and leads into the stomach. This opening also contains four or more calcareous supports running from one extremity to the other, and projecting at the base in four pointed spines. Cilia are very numerous along the course of these supports, and still serve the animal for purposes of locomotion. At a later period the larva acquires a still more pyramidal form, and the calcareous supports are surrounded by ciliated lobes. But now comes the most singular part of the process: This larva itself is not actually converted into a living Echinoderm; but the latter sprouts, as it were, from it, and on arriving at maturity scarcely retains a trace of the embryo from whence it sprang. This is effected in the Ophiura (Serpent's-tail) in this fashion: Small sacs first appear within the larva, encircling the mouth, which, gradually growing out, unite and represent the disk of the animal. After a short time the new creature forms a mouth for itself, having hitherto derived its nourishment by the mouth of the larva. The arms now begin to sprout; and very shortly appears the first commencement of the calcareous skeleton, under the form of little reticular grains in the substance of the animal. After a further development the larva is cast off altogether, and the young "Serpent's-tail" presents the perfect form of its parent; still, however, for some little time retaining its cilia, and using them for the purpose of swimming, but these eventually disappear. The only part of the larva adopted by the perfect animal, and that greatly modified, is the intestinal canal. The point at which the connection between the larva and its developed bud was broken off is always marked by a plate of a peculiar character.

We have only to add that Echinoderms are found in all seas, and shall now proceed to examine these strange and beautiful creatures more in detail.—W.

(To be continued.)

TIFFANY AS A SHELTER OF FRUIT FROM BIRDS.

As I find it impossible to keep my fruit from birds, I purpose to cover a large space with net another year, high enough to walk under; but as net is so apt to get torn by catching in the Gooseberry bushes especially, and does not keep out heavy rains wasps, flies, &c., the thought has struck me whether a house of tiffany would not be better. Might it be allowed to remain up all the year? If so, it would be useful as a protection for Cauliflower plants, &c., during the winter which might be planted between the rows of Currant bushes, &c.—A DEVONSHIRE VICAR.

[We would recommend you to make your tiffany-house a permanent structure; for while it is an effectual protection against birds and wasps, and, to a considerable extent, against frosts, it admits a sufficient amount of rain, which comes in like a thick dewing, and quite enough for the purposes of cultivation. We do not know yet how it will affect the ripening of fruit.]

HEATING VINE-BORDERS.

"In THE COTTAGE GARDENER for June, 1858, page 136, is a letter from Mr. Fish, in reply to an inquiry from 'G. H. A.,' in which Mr. Fish seems highly to recommend the heating of Vine-borders by means of hot-water pipes in a chamber beneath the border. I wish to ask if Mr. Fish still recommends the plan; and, also, if 'G. H. A.' can give any account of his having successfully adopted the method on which he seemed about to enter. It is a subject of great importance to all who may be erecting houses for Vines, and would involve little additional expense if done at first. Any information, particularly if accompanied with a description of such a plan in actual use, would be a public benefit. Also, in such a plan, whether it would be better to train the Vines down the rafters instead of up them?"—W. B.

I CORDIALLY join in the opinion of our correspondent, that the subject is one of great importance. I regret I can add little or nothing to the opinions and practice detailed already in these pages; but would be glad to have the opinions and practice of others unfolded for our information and guidance. I have hunted through a number of volumes of gardening literature to find a plan of the vinery at Lord Belper's, at Kingston Hall, near Derby, but I have failed to find it, though I know a rather full account, as well as a plan, was given some years ago. Perhaps if this meet the eye of the successor of the late Mr. Mackie, he would be induced to give the details afresh, and also the state and condition of that splendid vinery now. When I saw it the leaves were very small in proportion to the hard, short-jointed wood, and the fine branches which hung all over the house very thickly, and as equally distant from each other as if they had been set out with a pair of compasses. The training was much the same as our correspondent, at the page alluded to, contemplated —viz., a spurred rod run up in the centre of a ridge-sash, the roof being ridge and furrow, facing the south, and each ridge

about three feet from its next neighbour. I recollect detailing somewhere the construction of the border, but that I cannot find in this busy season. From memory only I would state, that the border outside where the roots were was very wide, and for some twenty-five feet of that width it was chambered and covered with flagstone. In that chamber a great proportion of the heating-pipes were placed, with slides to admit the heated air into the house at pleasure. As far as I recollect, the pipes inside were chiefly used in the autumn to expel damp. If great success constitutes a criterion, then the fine crop in that very wide vinery spoke at once as to the usefulness of the plan for very early forcing epecially. It will be seen that the roots could be excited even in advance of the stems. I should be glad to be corrected as to the above recollections.

I also recollect that in the *Gardener's Journal* for the year 1848, Mr. M'Intosh, gardener at Milton Abbey, gave a plan and a section of heating Vine and other borders by pipes in brick cement-troughs with small perforated pipes to admit the heat more easily through the soil of the border, and chiefly for the means of getting rid of the covering when the Vines, &c., were used for early forcing; the border instead being covered with wooden or felt shutters. Perhaps our correspondent "G. H. A." will give us the result of his contemplated practice. So far as our own limited practice goes with heating borders by flues or hot water, I should decidedly approve of the borders being heated from below, for very early forcing; for general Vine growing, although I would not discard it where I could get it, I should not consider it of equal importance. Mr. Fleming heated the border of an early vinery at Trentham from below very successfully, the border being formed above an open chamber and arches, and the heat supplied from fermenting dung, &c.; the chamber being so open that not only the heat, but the ammonia, &c., from the dung found its way into the soil of the border. There is, however, much more labour attendant on this plan than in using either flues or hot water. If pipes and gutters are used in conjunction, the gutters through which the pipes pass might be supplied with manure water of various kinds, and thus fertilising steam and gases might be thrown off if deemed advisable. Care must be taken not to admit that into the house unless in a very sweet condition. In general, it will be easy to give moisture with the under-heating if deemed advisable.

Where expense was no object I should prefer the heating-pipes for the border of an early vinery to be in a chamber, and that so deep as to permit of being entered; and then, if kept moderately dry, a better place could not be found for Sea-kale, Mushrooms, and blanched salads in winter. For all practical purposes, however, so far as heating the soil is concerned, for a border—say twelve or fifteen feet wide, or even less than that—I would just as soon have four 4-inch pipes at equal distances covered with six inches of rubble, a couple of inches of rough gravel, and two inches more of firm concrete, made of equal parts of fine gravel and rough sand, and half or part of quicklime, and enough of water to mix it, and lay it on smooth. On this a little rough lime rubbish might be put—say three or four inches, and then eighteen inches of good loam, mixed with a little lime rubbish and pieces of broken bones. This concrete would allow the heat to rise freely, and prevent much moisture escaping. It ought, therefore, to slope, to prevent water lodging above it, and a drain in front would, therefore, be necessary. A few round drain-pipes stuck on this concrete end upwards, and the upper end closed with a plug, would not only help to diffuse the heat through the soil, but would enable you at once to ascertain the state of the bottom of your soil as respects dryness, and enable you also easily to give moisture at the bottom if it were not wanted at the top. If the border were not more than five or six feet wide, two pipes would do. I should like this bottom heating to be independent altogether of the top heating, so that either top or bottom heat could be given at pleasure. The bottom heat would be chiefly required in early forcing, and in the spring of the year. A thermometer or two in the border would show the temperature there at once. An average temperature of 70° in the soil would, in general, be enough.

I have had it objected to this plan that there is a danger of drying the roots too much, and even of burning them. Of course, any advantage may be abused. A fire is a cheerful thing in winter, but that fire will burn our fingers off if we are silly enough to keep them in it. With the precautions mentioned, and common care, no such dangers need be apprehended.

Some other friends ridicule the idea of heating a border from below whilst the top of the border is exposed to a severe frost—half of the roots thus being in the tropics, and the other half in Greenland. But the bow of ridicule has many shafts, and one may be made to neutralise or counterbalance the other. The supposed conduct, no doubt, will be ridiculous enough. We would imagine a man to be extremely benevolent, who, in order to heat a greenhouse, used fires large and open enough to tell upon the atmosphere of the neighbourhood for miles. The man who heats his border from beneath is not likely to be so very careless as to let the frost get in on it at the surface. If circumstances prevent him taking a leaf out of Mr. Bailey's book, and placing on the surface of the border before the end of autumn some six or nine inches of fern, he may manage a similar thickness of tree leaves and long litter. If not too great a demand upon the purse, he will take a step farther, and cover that fern-covering with shutters made of wood or asphalt; so that neither frost nor cold, rains nor melted snows, shall have the chance of getting to and chilling his excited roots. Better still if he can manage it, he would make the border into one or two shallow cold pits, and use glass partly as well as shutters for protection, and thus be at no loss for a place for winter and spring salading, and early crops of various things that did not root deeply and could all be cleared away, so that the sun might have the chance of shining on the border after the beginning of June. There is no end, however, to the uses that such glass-covered borders might be put to; and then the glass removed would come in for main crops of Melons, &c., elsewhere in summer.

I know that many are against, not only heating from below, but heating a border at all, even by fermenting matter or mere covering matter on the surface; the covering in the latter case being put on time enough to prevent the heat of the summer radiating and escaping: and their great argument is, that they have had as good and as early Grapes with the borders outside left to Nature, as ever they have seen whenever so much care and pains were taken to protect and heat from covering the surface. I fully admit the plea—I have seen such fine crops in plenty. But in almost every case that I have known where such success was at all uniform, the borders were not only deep, but the roots had got deep; so that you might dig and trench the border with impunity—the nearest roots often not nearer than two feet and two feet and a half from the surface. In such circumstances it would require a tremendous frost to reach the roots; and, if well drained, a moderate downcome of rain will do no great harm. It was attempted to show in a late article that at such depth in common seasons the temperature does not fall very low; and therefore the Vines do not receive the check from alternations of weather which they would be more liable to if the roots were nearer the surface. I have seen Vines, however, so situated do well for years; and then, in a winter and spring more cold and wet than ordinary, after showing well, have their bunches either tendril off into nothing, or lose the most of the berries from shanking and shrivelling, which even a good covering at the surface would have done much to prevent. In other cases, after fruiting well for a time, the roots being more inclined to descend than rise, the shoots at length got gross and long-jointed, and the Vines became more distinguished for fine growth than for fine well-flavoured fruit, even though that were anything but abundant. To have continuous heavy crops of good fruit, our own opinion is, that the roots must chiefly be from six to twenty inches from the surface; and at that depth, I believe, all Vines will be apt to suffer if forced and the borders not protected. Instead of being natural, I consider it very unnatural to have the stems of a Vine ranging in a temperature of from 60° to 70°, and the roots trying to do their best in a temperature of from 28° to 40°, or even lower. The protection of the heated covering also tends to keep the roots not far from the surface.

To the argument that heat cannot be sent downwards, I do no more than bring practice, as previously detailed, in opposition to theory. But on all doubtful cases I should prefer a protecting medium to keep heat from escaping, rather than a huge mass of fermenting material for sending heat downwards. In all cases the thermometer is a surer judge than anything we may premise, affirm, or think; and however the heat is procured, whether saved, transmitted downwards, or sent upwards, I believe with my present lights that continuous success in early forcing will much depend on getting the roots excited into action as soon as, or, rather, sooner than the branches.

I perceive there is one matter in our correspondent's letter omitted—viz., the mode of training the Vines in the house up or down the rafter. That training I should regulate according to circumstances. If it were deemed advisable to have the border

for Vines inside the house, that border being chambered, and heated, or otherwise, then I would plant the Vines at the back of the house, and train the rods down under the rafters, or rather in the middle of the sashes. By so doing, I should expect the soil in which the roots were growing, to obtain the greatest benefit of sunlight. If the border were made outside the house in the usual way, then I should plant the Vines at the front of the house, and train them up under the glass in the customary way. I believe that all fruit trees are benefited by having the soil in which they grow exposed to solar action. The floor inside of a vinery is in this respect inferior to an outside border, as in the first case the shading from the sun must be considerable. For early forcing, however, there are the great counterbalancing advantages that the soil is more easily heated and kept in the desired state as respects moisture, &c., unless, indeed, the border outside be covered with glass, or, at best, wooden covers.

I have thus so far answered the inquiries of "W. B.;" but I trust that, before commencing operations, some coadjutors and correspondents will give him and the rest of us the benefit of their practice and observation in this respect. R. FISH.

WEEDS ON GRAVEL WALKS.

MANY of your readers who live within an easy distance of a chemical manufactory will be glad to learn how to destroy effectually from thence the weeds on their garden walks.

Any manufacturing chemist will be glad to supply the residuum from the manufacture of ether, at one halfpenny per pound. Mix six parts water with one part of this material in a glazed earthen vessel, then let a man and boy be employed, the one to pour the liquid from an earthen jug over the weedy walk, the other to well rub it in with a worn-out broom or scrubbing brush; no watering-pan to be used, or it would destroy it in an hour. Care, too, must be taken that it does not fall upon the clothes or hands, as the acid is extremely powerful.

The weeds die almost immediately, nor will any for a long period spring again. It also utterly destroys the dwarf green moss which is so apt to grow on walks in damp, shady places. Walks operated upon twice a-year in this way will effectually be kept clean and neat at a very slight cost.

Care should be taken not to apply it within two inches of the edge of the lawn lest it should destroy the grass.—COTTAGE GARDENER'S FRIEND.

[What effect has it upon shoes? To prevent injury to them ought not the walks to be well watered after the acid has been applied, and before they are walked upon?—EDS. C. G.]

HARDY ORCHIDEOUS PLANTS.

(*Continued from page* 343.)

IN POTS.—The advantages of growing hardy Orchids in pots, are:—1st. The more complete command over the season of growth and the season of rest. If they are in pots they may be watered just as they require that element, giving them when first starting into growth a moderate quantity, just sufficient to moisten the soil, and gradually increasing it as the roots and foliage advance in action; and when the bloom is over and the foliage begins to decay, the water can be withheld and gradually reduced till the plants are completely dormant. Then the soil should be as nearly dry as possible, and kept so till the growing season returns. 2ndly. When in pots they can be easily and safely removed, and placed under shelter in severe weather; for although they are quite hardy, yet, being in pots, the frost would enter through the sides of the pots and endanger the safety of the fleshy tubers. In the meadows or thickets the turf or the fallen leaves protect them sufficiently. The situation for the pots in summer should be on the warm east border, and the pots should always be plunged up to the rim. When at rest remove them into a cold frame or pit, and shelter them by a covering on the glass in hard frost. Keep the glass on in wet weather, but draw it quite off on dry, fine days.

IN BORDERS.—Some of the stronger-growing species, however, will thrive well in a border prepared for them, with the proper soil for each species. This border should be formed with boards or slates at the sides, raised six or eight inches above the general level of the ground; and the bed of soil should be well drained and kept an inch or two below the edgings. Then when the leaves are decayed, the border may be covered either with boards or hoops, and oiled canvas, to throw off the heavy autumn and winter rains. For heavy rain, and, consequently, saturated soil is certain death to these lovely plants.

Potting and Planting.—As will be easily surmised, the best season for repotting is just when the buds begin to swell. As soon as that is perceived, prepare the different soils for them by placing a sufficient quantity under cover to dry and become moderately aired. Prepare also larger clean pots and plenty of drainage. Broken unburnt limestone makes a good drainage for kinds that require chalky loams. For others, broken garden-pots will be better. Such as are in pots should be brought from their winter quarters and placed handy near the potting-bench, then drain several sized pots to be ready, and then carefully turn the balls out of the pots. Pick away quite as carefully the old drainage and part of the soil, being careful not to wound the tubers or fibres. All dead roots, of course, should be removed. Then place some of rougher parts of the compost over the drainage, and upon that a sufficient quantity of soil to bring the ball nearly level with the rim of the pot. If the plant is strong, and evidently larger than it was at the last shifting, then give it a larger pot; but if not, one of the same size, but a fresh one, will answer. Fill the fresh compost in round the ball, cover the top of it about half an inch, or in proportion to the size of the plant; but beware of deep potting, for that is injurious to the plant. When the pot is full press the new soil down gently, and give the pot a smart rap or two on the bench. Level the soil, and then that plant is finished potting; place it on one side, and take the next in hand; and so proceed till all are finished. Then replace them in the frame, or plunge them in the raised border; but give no water for several days till the buds begin to push through the soil. Then water in such proportion as the plants require.

The management of such as are grown in borders in respect to removing the soil is rather difficult, for the tubers are so tender that if once bruised the plant is irrecoverably injured. The only way is to open a trench at one end, and with a small fork gradually pick away the soil till a plant is undermined, then carefully lift it up and place it in a box as gently as possible, keeping it covered till replanted, and so proceed till there is a sufficient space emptied of plants. Let then the old soil, or at least a part of it, be taken away, and a sufficient quantity of fresh compost put in to fill up the space. Then take up more plants, and fill up the new portion of the bed and replant immediately. By so doing the roots will be but a short time exposed to the air; the least shrivelling by being exposed injures the succeeding year's growth. Proceed in this manner till the whole collection is replanted, filling up the end of the bed with the plants reserved in the box for that purpose. Then give a gentle watering to settle the soil about the plants. They will require no further care, excepting keeping clear of weeds and a constant look-out for insects to destroy them.

PROPAGATION.—*By Seeds.*—Many species of these hardy Orchids seed freely, and ripen it perfectly. Save the seed as soon as it is ripe, and fill some wide shallow pans with the proper compost. Scatter the seed upon the surface, and cover it with a very thin layer of moss. Keep this just moist constantly by sprinklings of tepid water, given either by the syringe or a fine-rosed watering-pot. Place the pans in a cold frame to protect them from heavy showers, and shade them from bright sunshine till the seedlings have made some progress; then inure them gradually to bear the open air and full light. Keep them in those pans through the first winter and second summer, protecting them from hard frost, and allow them to rest in winter the same as older plants. In the spring of the second year they should be separated and planted singly, either in small pots, or, which is better, in a border prepared as described above. With care bestowed upon them they will flower the third or fourth year. If the grower is successful in raising a quantity of the best species, he will be enabled to sell the surplus, or exchange them with others for such species as he does not possess.

BY DIVISION.—The tuberous-rooted species when they thrive send forth side-shoots, and these become plants. At the time of repotting or replanting these young tubers may be parted from the old plants, but they must be handled very carefully, so as not to bruise them in the least; for, as I observed before, a wound, be it ever so slight, is fatal. Observe, also, to pot each species in the same kind of soil as the old plants grow in; also take care to expose the tubers as short a time as possible to the open air, for these small tubers suffer more from being dried even than the larger ones. Pot them carefully, and label every one

with its proper name; so that, if you wish to exchange with your neighbours, you can always do so safely, though your plants may be at rest and dormant. Some kinds—the Cypripedium, for instance—have bundles or fascicles of long fleshy roots; and the buds are placed in a cluster, with these roots radiating from them. To propagate such rooted plants is a nice operation. A sharp knife must be used, and the blade put between the buds without bruising them. Let it pass through the connecting part, or rhizoma, and no lower, or the roots will be cut also. Then with the hand gently separate the parts cut off, and the roots will divide away from each other without injury. Repot both the parent and the offspring immediately in proportionate-sized pots, and cultivate afterwards in the usual way. T. Appleby.

(*To be continued.*)

PURPLE ORACH—VARIEGATED GERANIUMS.

Purple Orach is a capital thing. I saw it at Trentham two years ago, had my garden full of it last year, and found all my borders perfectly *bloody* with it early this spring from self-sown seeds blown about last autumn. This hardiness makes it an invaluable assistant to Perilla, and it may be grown to as tall, and almost as elegant, a specimen (by liberal treatment) as a *Humea elegans*; or you may keep it to an edging six or nine inches high, by pinching and clipping.

This season I planted two large match-beds with *Brilliant* Geranium (the silver-edged, not the broadly variegated) in the centre; then Perilla, and edged with variegated Alyssum. The Perilla, a foot wide, took two rows of plants; and half of it soon fell a victim to those melancholy north-west winds we have had so much of. So the survivors were taken to fill up the inner row of the dark band in each bed, and the outer row of the band was made up entirely from the aforesaid "bloody" borders, and the beds have looked excessively well ever since. The graceful, compact growth of Perilla cannot be superseded by purple Orach; but the latter is not to be despised. I have it mixed, plant for plant, with *Farfugium grande*, and also as an edging to *Tritonia aurea*. By the way, *Tritonia aurea* will make a good bed in decent seasons; as any one may prove by buying two or three plants, and following carefully the directions "D. B." has given on the subject.

Variegated Geraniums have done well here, particularly *Burning Bush*, *Hotel de Cluny*, *Fontainbleau*, and *Countess of Warwick*, and *Annie*, a decided improvement on *Flower of the Day*. Verbenas only passable: *Lord Raglan* and *True Blue* (which should have been called *White-eyed Purple*) the best.—A. C. S.

A REVIEW.

Mr. Bailey's papers on the past winter and the spring's future relative to horticultural prospects on the other side of Oxford were so applicable to this side of the rare old city, that I thought it superfluous to trouble you with observations of mine on the subject then; but to the several recent calls claiming information as to our "resuscitations" and doings, pen in hand I rush back again to the frosts of last October, which made a clean sweep of all in our garden, excepting Celery, Cottage Kale, and the Cabbage—these stood out the winter bravely, and thus I was more favoured than a great many people. I have even now several representatives of the Cabbage crop, the envy of our odd man. What the sort is I do not know. The seed was sent to me from Suffolk, under the supposition that it was a good quick Turnip I knew there of yore! I shall perpetuate the breed certainly for its good qualities, as I never thought I could tolerate the idea of Cabbage during the time of *Marrowfat* Peas before. Asparagus we had abundant and fine. Not a particle of top-dressing was applied to the bed during the winter, thus proving the plant to be as hardy as the Oak.

The blossoming period for my fruit trees passed off well. The Nectarines and Peaches are young. They did not set any fruit; and, contrary to a general rule, they are healthy and promising. They began to be affected with blight in the spring; so I heated a copper of soapsuds, and gave them a thorough syringing with it at 130° by the thermometer—so hot that I could scarcely hold the syringe in my hands. It destroyed all trace of insect life cheaply and effectually. This is an *Apricot* neighbourhood, and the produce is great and late this year. Hereabouts one may produce all the fruits in the catalogue up to Pine Apples, and yet get pooh-poohed if one has not got a crop of Apricots! but the fact is my trees are screws. Twelve years ago, when I rearranged this garden, I procured the fruit trees from our neighbouring nurseryman, and the Apricots are going the way of most all the others—to the oven. I now send further and fare better; and I have excellent crops of Pears, Plums, and Cherries upon young trees procured from within the radius of London. *Apples*, my crop is enormous. *Quince*, ditto. *Gooseberries*, I have made eighteen gallons of *sham*-pagne of, for what could have become of all of them? *Currants* and *Raspberries*, judged by the preserve-cupboard and manifold tarts, bountiful: the Rasps good-flavoured too, which, considering the season, I greatly attribute to the "awfulality" tank, for the application of which I have added a long-legged pump figured in the advertisements. *Cucumbers* and *Melons*, in consequence of calls from home for days together, and the never following out the instructions during my absence by the damsels, I have given up with vexation their cultivation, and sold the frames. My last Melon I took to Elgin in a hatbox: it scented the trains and hotels on its way thither, and was pronounced "very good." *Strawberries*, a good crop and lasting. I have picked a fine plate of *Eltons* this 30th day of August, and according to appearances shall be able to do so into the second week of September. I still cultivate my old sorts—the *Keens' Seedling*, *British Queen*, and *Elton Pine*; and I am never satisfied if I cannot gather Strawberries on the natural ground from the middle of June till the 1st of September. The Rector, like the late T. A. Knight, Esq., breakfasts on Strawberries and cream as long as he can get them. When the Strawberries were over, Mr. Knight, for the remaining period of the year, breakfasted on baked Apples and cream. Alas for cream, or milk either, in Woodstock! I fear the dairy people are not honest.

What shall I say for my *Grapes*? There they are, but they will not ripen this season, it is needless to say; so, if not champagne I must try hock. How many prunings of the vineyards abroad go to fabricate the wine? Green Grapes will surely do it better. Besides, I possess the receipt of the late Mr. Knight for making wine of the thinnings of unripe Grapes, and send it to you for the good of the out-of-door Grape cultivators of the present year; and I can do so the more confidently, because I have drunk of the very good wine made from the receipt at Downton Castle, where I should as soon have thought of flying in the air as to publish it, or ever to have become wine-maker and Grape-grower before the public.

Green-grape Wine.—"To every 5 lbs. of unripe Grapes add 7 pints of water (when boiled and allowed to get cold it is best). Bruise the Grapes, and put them into a tub with 6 parts of water. Allow them to remain for ten days, stirring them twice a-day. Then strain through a fine hair-sieve, and wash the pulp with the remaining quantity of water. To every gallon of juice add 3 lbs. of best *raw* sugar. When dissolved put it into a cask, and stir it every day until the fermentation ceases, which can be ascertained by putting your ear to the bunghole. If the wine is made in the spring it will be fit to fine and stop down in the autumn, and for bottling in the spring following. An ounce of isinglass is sufficient to fine 16 gallons. Dissolve the isinglass in a cup just covered with vinegar (*sic*), let it stand twelve hours, and then whisk it up with about half a pint of sherry. Draw a gallon of the liquor from the cask, and whisk it well together. Return it into the cask, stirring it well, and it will be fit to stop down the following day."

Now I am on the subject of wine I wish to correct a blunder. In No. 589, page 230, I noted back to Nos. 161 and 156, thus referring the reader to Mr. Livett's excellent wine articles. I can account for it by having been so accustomed to consult them. The figures came as a matter of course. For the two bottom lines on the left-hand page read, "I have made no alteration in the system of groundwork and training my Vines from that which I stated in Nos. 427 and 428, Vol. XVII."

Roses.—My Roses, owing to the wind and the wet, have suffered, though we have now in very good bloom and buds offering, *Duchess of Sutherland*, *Baronne Prevost*, *Lord Raglan*, *Louis Napoléon*, *Madame de Cambacères*, *Duchess of Norfolk*, *Géant des Batailles*, *Souvenir de Malmaison*, *Reine d'Angleterre*, *Général Pelissier*, *Triomphe de l'Exposition*, *Madam Rivers*, and *Thomas Rivers*; but the king of all the Roses I have seen this year was *Jules Margottin* at Putney Heath.

Potatoes.—These are my *spécialité*. I would rather lose all the other crops in the garden put together than the Potatoes. Mine were all taken up by the 20th ult.; and I still maintain

the ground that I did when I wrote in defence of the esculent in these pages years ago—about the same time a great authority was writing disparagingly about it in another journal. I have an excellent crop. They are under my eye for three weeks or so before storing. I still continue to work for them on the trench system, which I sent to The Cottage Gardener, in April, 1858; and the benefit we continue to derive from the plan constitutes a very good medal for me, albeit not so conspicuously honourable as if I had won it in the trenches before Sebastopol. The sorts I grow are—*Mitchell's Early Albion Kidney*, and the *Shutford Seedling* (round), early, the latter lasting till Christmas; the *Fortyfold* (round), *Haigh's Kidney*, and *Cobblers' Lapstone Kidney*—second earlies, and consecutive for the table till Potatoes come again.

Peas.—I have had, and continue to have, a good produce. Broad Beans and Early Turnips I discard in deference to the Potato, as the garden is circumscribed. All the Cabbageworts are grown as auxiliaries; and now that the Potatoes are off the ground the trenches are conspicuous for *Walcheren*, *Sprouting Cape*, and *Knight's Protecting* Broccoli, Savoys, Brussels Sprouts, and Kales.

The *Versailles Cabbage Lettuce*, sent out in the seed-packet of the Horticultural Society two years ago, I have very fine. It is one of the very best summer Lettuces grown. It seeded with me last year. This year it does not offer to do so, but remains fit for use an immense time.

In short, what with semi-long Carrots, Beet, Celery, *Dwarf* Kidney Beans, Transplanted Turnips, and things coming on from the formula of autumn sowings, our garden is, and has been, this windy, stormy, cloudy, rainy season, as productive as I ever remember it; and we are thankful to the Great Giver for all these good things.—Upwards and Onwards.

(*To be continued.*)

FRUITS and FRUIT TREES of GREAT BRITAIN.

(*Continued from page* 330.)

No. XXIX.—Beurré Giffard Pear.

This new summer pear is one which is as yet very little known. It is of comparatively recent introduction, but the great merits it possesses as an early fruit are such as cannot fail to recommend it for general cultivation.

The fruit has a strong odour when ripe, below medium size, pyriform or turbinate, and even and handsome in its outline.

Skin smooth and shining; on the shaded side it is of a greenish-yellow colour, strewed with minute dots, and becomes of a clear citron yellow when ripe. On the side next the sun it is entirely covered with a blush of bright red, and thickly dotted with bright crimson dots like the *Forelle;* and about the stalk is a thin coating of pale brown russet.

Eye prominent and wide open, inserted without depression, and with no distinct segments.

Stalk short, obliquely inserted on the end of the fruit.

Flesh yellowish-white, crisp, very juicy, sweet, and of excellent flavour.

It is usually ripe in the middle of August; but this season it did not ripen till the beginning of September.—H.

DEATH OF MR. ROBERT ERRINGTON.

By the death of Mr. Errington our pages are deprived of one of their oldest and most valued contributors, and a large circle of friends and relatives have to mourn the loss of one marked by more excellencies and fewer failings than characterise most men. In our 398th number will be found his portrait and autobiography, and we shall, therefore, merely repeat here that he was born in the November of 1799 at Putney. His first engagement as head-gardener was with Joshua Alcock, Esq., of Roehampton, then with Lord Gifford, and finally with Sir Philip Egerton, Bart., at Oulton Park. Here Mr. Errington died, on the 27th of August, thus closing an honourable service of nearly thirty-three years duration. "I had," wrote Mr. Errington, "the honour of serving, when I first came to Oulton, the father of the present baronet, and I have had the gratification of rearing, by God's blessing, eleven children,—three of them young men who have been under a course of training as gardeners in some of the best situations for that purpose in the country. I trust they will justify my hopes concerning them." In those hopes we join sincerely, and well-pleased shall we be to hear that they are endowed with the same sound knowledge and skill in gardening, the same literary powers, and the same honourable and religious principles as characterised their father.

TROPÆOLUM STAMFORDIANUM.

Although we were the first to announce to the public the advent of this addition to the best of the new bedding plants, we happen not to have seen a whole bed of it ourselves yet. And we have been concerned, after passing a high opinion of it, to have seen a bad report of it by a contemporary a few weeks since. It was said in that report that *Tropæolum Stamfordianum*, in a celebrated London nursery, was found to be so much inferior to *elegans*, that, &c., &c. But knowing from experience that travellers are not alone subject to tricks, we suspected that some rival had been hoaxing our amiable friend and co-reproductionist; and so it has turned out to be in the instance of this beautiful plant. We have had several communications on the subject from friends and from strangers, and we have selected the following as the best surety for the public to trust to. Our authority says:—"Our mutual friend, Mr. Thomson, from Dalkeith Gardens, called here last week. And with reference to your lion-bed, he told me that *Stamfordianum* was the best bedder he had seen on his tour; that it was superior to *elegans* at his own fireside at Dalkeith, the same at Archerfield in East Lothian—one of the best bedding places thereabouts; that at Shrubland Park it was the best of all the bedding plants there; and that at Wrotham Park, near London, it occupied the same scale as at Shrubland." And we are very glad to hear it, and equally so to learn that Mr. Thomson is up to the mark himself.—D. Beaton.

COMMON FLOWERS.

"Flowers are the bright remembrancers of youth."

My mind often reverts to the scenes and pleasures of bygone times—to the happy hours I spent in a garden of flowers. Even now-a-days the sight of an old favourite flower will create a thrill of pleasure which is always refreshing.

One of the favourites of my childhood is the Everlasting Pea (*Lathyrus latifolius*), a plant which still grows about our cottage homes, and is there to be seen in the greatest perfection. There is one in my garden which is a great favourite. Sometimes I can count upwards of two hundred flowers on it, and from the first opening of a flower till the frost cuts it down there is a constant succession of bloom; but this season is an exception the cold and wet have put a stop to the flowering, but if we have fine weather I hope to see it again in full flower. It is well named "everlasting," for I know a plant in a cottage garden which has been handed down from father to son as a kind of heirloom for upwards of a century; and many a time has a son on leaving the parental roof tried to take a plant with him, but hitherto all

attempts to do so have failed. I am informed that there is a variety with bright red flowers. I received a few seeds from near Dublin, but they did not germinate.

Another flower of my childhood, the Evergreen Candytuft (*Iberis sempervirens*), is often seen in old gardens much more so than in bedding gardens, although it is sometimes used to advantage there. It is a plant that will grow and flower in the same situation for a lifetime. Old plants are sometimes allowed to grow to a large size, and when in flower are like a sheet of snow. If it overgrows the bounds assigned to it, it may be easily cut in, and will bear it almost as well as Box-edging.

The above two plants ought to be in every garden; and I have no doubt, if properly taken care of, will give satisfaction.—Rustic Robin.

ABOUT THE DANDELION.

This very common plant that adorns our grass plats and pasture-grounds with its bright, golden-coloured flowers from the first opening of spring until late in September, grows spontaneously in the four quarters of the globe—from near the poles to beneath the equator; on the margin of rivers and streams, as well as on sterile rocks; has various qualities that are seldom met together in any description, if ever heretofore combined in one.

I shall not stop to describe this very common and well-known plant. Dr. Gray, in his late "Manual of Botany," reverses the old name, "*Leontodon taraxacum*," no doubt for sufficient reason, to that of *Taraxacum dens-leonis*.

Our common English name, "Dandelion," is a corruption from the French name, "*Dent-de-léon*," which, like the German name, "*Lowenzahn*," and the old Greek name, "*Leontodon*," has its allusion, from the runcinately-toothed leaves, to the tooth or teeth of a lion. Another common English name is also after the French name, derived from its diuretic qualities. The other German names of "*Pfaffenrohrlein*" and "*Dotterbluhmen*," are not so clear. Thus much as to its name. Next its properties.

Medicinally.—The pharmacopœias recognise only the root, as being by far the most efficacious. It should not be employed till full grown, when the aqueous juices have become milky and bitter, in the months of July to September, and either used fresh or when carefully dried.

It yields its active qualities to water by boiling, and is used in the form of decoction, extract, or simple infusion. A crystallisable principle has been extracted from the juice of the root called *taraxacin*. It is bitter and somewhat acrid. The root is slightly tonic, diuretic, and aperient, and seems to have a specific action upon the liver, exciting it when languid to secretion, and resolving its chronic engorgments, and is a popular remedy with many practitioners, in this country, and in Germany particularly, in derangements of the hepatic apparatus, and of the digestive organs generally. Bi-tartrate of potassa added to the decoction improves its aperient effect, and aromatics correct a tendency to griping or flatulence. This is a brief statement of its leading medical qualities. Then as a

Culinary.—The tender leaves in spring, used in compound salads, are equal to those of Endive or Succory. The fusiform roots are eaten raw as salad by the French, and boiled by the Germans like Salsafy or Scorzonera. Dried and ground into powder, they afforded a substitute for Coffee, in all respects equal to that of Chicory root. As a

Weed, it is difficult to extirpate, because every inch of root, according to Loudon, will form buds and fibres, and thus constitute a new plant; besides, myriads of seeds are annually wafted over the country by means of the pappus, making the plant more abundant than welcome to the farmers. As

Fodder, swine are fond of it, and goats will eat it, but sheep and cows dislike it, and by horses it is refused. By way of conclusion, we will notice it as the

Rustic Oracle, as it is called in the "language of flowers." After blossoming the inner involucre closes, the slender beak of the seeds elongates and raises up the pappus while the fruit is forming, the whole involucre became reflexed, displaying the pappus in a globular head round the central disk, forming what are termed "puff-balls." Who is there that has not delighted in youth to scatter these feathered seeds by a puff of the breath, to see them carried off like miniature parachutes, and sailing over the green sward or meadow, thus wantonly, perhaps, aiding their distribution? A custom prevailed among rustic swains, when separated from the objects of their love, to carefully pluck one of those feathered spheres, charge each of the little feathers composing it with a tender thought, turn towards the abode of the loved one, blow, and the little aërial travellers were bidden faithfully to convey the secret message to his or her feet. Did they desire to know whether the dear one thought of them, they would blow again, and if a single feathered seed remained, it was a proof they were not forgotten.

But enough of this. I will only add, that the Dandelion attracted very early attention. Friends Howitt speak of it as

> Dandelion, with globe of down,
> The schoolboy's clock, in every town,
> Which the truant puffs amain,
> To conjure lost hours back again.

—J. Stauffer, *in Horticulturist.*—(*The Prairie Farmer.*)

TRADE CATALOGUES RECEIVED.

Catalogue of Fresh Imported Bulbous Flower Roots, &c., &c. Sutton and Sons, Reading.—In this catalogue are included, besides the usual kinds of Dutch Flower Roots, good collections of Gladiolus, select Geraniums, Trees, Shrubs, and Plants, and Choice Garden Seeds.

Autumn Catalogue of Dutch, Cape, and other Flowering Bulbs, by Hooper & Co., Covent Garden.—This is an excellent catalogue extending to forty pages, and contains a great deal of useful information on the subjects enumerated. The articles on cultivation are well written.

TO CORRESPONDENTS.

Light and Dark Fuchsias (*Dublin*).—The best selection of Fuchsias that we know of without going to fancy prices is in the "Illustrated Bouquet;" and we can verify their character from our own knowledge of all of them. Best 12 light Fuchsias:—*Mrs. Story, Countess of Burlington, Queen Victoria, Queen of Hanover, Fair Diana, Royal Victoria, England's Glory, Clio, Silver Swan, Fairest of the Fair, Maid of Kent,* and *Duchess of Lancaster;* but add *Venus de Medici,* a lilac kind. Best 12 dark Fuchsias:—*Prince Albert, Souvenir de Chiswick, Prince of Wales, Wonderful, Catherine Hayes, Charlemagne, Donna Joaquina, Tristram Shandy, Etoile du Nord, Emperor Napoleon, Hendersonii, Pilot,* and *Malakoff.*

Cuttings of Pinks, &c. (*N. B.*).—We have not spare space just now to answer your queries fully. If you will send five postage stamps with your directions, and order "Florists' Flowers for the Many," you will have the information you ask for, and much more.

Moving Asparagus (*A. Loftus*).—We recommend you to plant fresh beds next spring with three-year-old plants, and to let one or more of your old plants remain for two years to supply your table until the new beds come into production. Under similar circumstances we knew four old beds, half of each of which were cut away, and the shrubs there planted hid the halves allowed to remain. These remaining halves, being more regularly soaked than before with liquid manure, yielded as much Asparagus as the four entire beds did before.

Crystal Palace Scarlet Geranium (*W. P. Maddison*).—No one will be able to identify the *Crystal Palace Scarlet* by a cut specimen, even if he had it fresh gathered; because many more of the same breed are about, and come so near to each other, that the best judge of them would need to see a bed or row of each growing together to be able to decide. It is more by the effect than any outward mark that this kind took the lead of the fashion.

Books—Late Grapes (*J. H.*).—You ought to find a definition of all the terms in "Lindley's Elements of Botany," if you have the last edition, which is much more full than the first. We cannot recommend you anything better. What you do not find there can be got from any Latin Dictionary. Two good Grapes for hanging are, *Black Prince* and *Lady Downe's Seedling.*

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

September 19th, 20th, and 21st. Portsmouth. *Hon. Sec.*, Mr. E. Clarke, 26, Wish Street, Southsea, Hants. Entries close August 11.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.

October 4th. Middleton Agricultural. *Sec.*, Mr. T. Mills. Entries close September 27th.

October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.

December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

"WHAT WOULD LIFE BE WITHOUT A GRIEVANCE?"

That is a charming paper in the "Spectator" which represents mankind as dissatisfied, because every man believed he had the heaviest burden and the most intolerable affliction to bear. It serves our purpose only thus far, and, therefore, we

continue by asking ourselves why it is people like to complain. Do they wish to be pitied on account of the woes they endure? Do they wish to be admired for the courage with which they bear them? or do they like to grumble?

We are forced to this train of reasoning by the inspection of the letters we receive after any show of magnitude.

"'BELINDA' has a high respect for the press, and knowing its power has no doubt WE *can* ascertain why her Hamburghs did not gain a prize at the Crystal Palace. She admits the comb of one of the hens fell over a day or two before they went to Sydenham; but it was accidental, and those who saw them both before and after the competition can affirm it. She wishes to know if that was the only reason."

"'J. C. H.' wishes through our columns to expose a grievance. He showed two pens. He put £100 on one, and £2 on the other. The Judges, much to his surprise, gave first prize to the latter. He sticks to his own opinion, and says the others were the best. On arriving at the Palace he finds the pen sold. As shows cannot be held without exhibitors, and as many of them, like himself, like to make it pay, he suggests that the prices shall not be affixed to any pen till the Judges have made their awards. He wants nothing but what is fair, and does not wish to cause trouble. He would say thus: 'J. C. H.,' 178, 179, 180, prices according to merit and awards, £2, £10, £20."

"'T. F.' wishes the public to be allowed to alter the prices of their pens. He was from home when the entries were made, and a first-prize pen has been sold in consequence for 40*s*. His stupid man thought that a prohibitory price. He also laments the want of courtesy shown by some exhibitors and visitors. He asked the purchaser to give up the pen, explained the mistake to him, and he only laughed at him."

"'J. K.' never grumbles, nor does he ever find fault with the decisions of the Judges. Their task is hard enough, and its difficulties should not be increased; but he wishes he may never breed another chicken. If he can understand the merits of pen 2040, 'J. K.' thinks them the worst birds in the class. His own are the best, and had they been properly judged (which they *were not*) he would have won. Nevertheless, he does not find fault."

POULTRY EXHIBITION AT KEIGHLEY, YORKSHIRE.

THE annual Poultry Show in connection with that of the Keighley Agricultural Society took place on the 5th inst. At 6 A.M. the bells of Keighley Church burst forth in a long succession of merry peals, proclaiming far and wide for miles around that the customary quietude of the neighbourhood was that day to give place to a joyful and universal holiday. As the morning progressed, great numbers of banners were erected across all the main streets, bearing suitable inscriptions; the one nearest the railway station, being visible several hundred yards, was inscribed in bold letters some eighteen inches long, "Welcome visitors all." The shrubberies of the neighbourhood had evidently, too, contributed no mean addition to the arrangements of the day. By ten o'clock many thousand visitors had arrived; and at the time the band of the local Rifles came forward to precede the procession of the Committee and Judges to the ground, the road was, from the numbers assembled, scarcely passable. In spite of the presence of so many sight-seers, however, the greatest order and decorum prevailed. For many hours from this time every successive train brought great accumulations to the previous visitors; and it certainly struck us that soon after midday we scarcely remember having seen a show-yard better filled; whilst, most luckily, the weather was the most favourable that could be wished for.

The old *Cochins* were shown in very indifferent trim; in fact, we rarely see so meagre a competition. The *Chickens*, on the contrary, were many of them very good; and among them some light "Cinnamons" were birds of much promise. We cannot speak highly of any of the Black *Spanish*, save and except the two first-prize pens. As candid journalists, we must say the less is said of the adult Chitterprats (Silver-pencilled *Hamburghs*) the better; although for many years this locality has produced the greater part of our principal exhibition birds. The *Chickens* were, however, very good indeed. The selfsame remarks are equally applicable to the Golden-pencilled, the old birds being one of the most indifferent we remember seeing. The Golden and Silver-spangled *Hamburghs* were, on the contrary, perfect almost without the exception of a single pen. They were well worthy of all praise. Most of the Black Hamburghs exhibited were faulty in combs. The *Poland* classes were superior to common; the Black with White Crests particularly so. The *Dorkings* proved how successfully this variety will stand the extremes of weather, even so far north as Keighley. The *Game*, generally, were good, but several of the very best pens became outcasts from not the slightest attention having been paid to matching the colour of the legs. For the hundredth time we must state, that every other good quality combined will not make good this deficiency. The *Bantams* were not first-rate, but the *Ducks*, *Geese*, and *Turkeys*, show that Yorkshire stands very highly in useful poultry.

All the arrangements of the Committee were most satisfactory and complete, every one appearing satisfied.

The Judges were J. O. Jolly, Esq., Acombe Grange; and Edward Hewitt, Esq., of Eden Cottage, Spark Brook, near Birmingham.

COCHIN-CHINA.—First and Second, W. Dawson, Hopton. *Chickens*.—First. H. Sharp, Bradford. Second, W. Dawson, Hopton. Commended, W. Dawson.

SPANISH (Black).—First, T. Robinson, the Gill, Ulverstone. Second, D. Wilson, Sutton Fields. *Chickens*.—First, J. Dixon, Bradford. Second, W. Cannan, Bradford.

CHITTERPRATS First, J. Dixon, Bradford. Second, W. Cannan, Bradford. *Chickens*.—First, J. Stell, Keighley. Second, Mrs. H. Sharp, Bradford. Highly Commended, J. Stell; J. Dixon, Bradford. Commended, G. S. Taylor.

GOLDEN PHEASANT.—First, J. Dixon, Bradford. Second, H. Carter, Upperthong. *Chickens*—First, H. Carter. Second, W. Cannan, Bradford. Highly Commended, J. Dixon.

HAMBURGH (Golden-pencilled).—First, W. Cannan, Bradford. Second, S. Shaw, Stainland. *Chickens*.—First, Mrs. H. Sharp, Bradford. Second, S. Shaw. Commended, S. Barrett, Harewood Bridge.

SILVER PHEASANT.—First, W. Cannan, Bradford. Second, J. Dixon, Bradford. Commended, W. Cannan. *Chickens*.—First, W. Cannan, Bradford. Second, S. Shaw, Stainland. Highly Commended, Mrs. H. Sharp, Bradford. Commended, J. Hartley, Long Lee; T. Smith, Hexley Head; J. Mitchell, Hippe holme.

BLACK PHEASANT.—First, W. Cannan, Bradford. Second, J. Scott, Skipton. *Chickens*.—First, W. Maud, Bingley. Second, W. Cannan. Commended, W. Maud.

POLAND (Golden Pheasant).—First and Second, J. Dixon, Bradford. *Chickens*.—First and Second, J. Dixon.

POLAND (Silver Pheasant).—First and Second, J. Dixon, Bradford. *Chickens*.—First and Second, J. Dixon.

DORKINGS.—First, Mrs. H. Sharp, Bradford. Second, H. Hainworth, Lupset Hall. *Chickens*.—First, J. Dixon, Bradford. Second, H. Hainworth.

GAME.—First, F. Hardy, Bradford. Second, J. Scott, Skipton. *Chickens*.—First, J. Firth, Halifax. Second, F. Hardy, Bradford.

BANTAMS (Black, White, or Game).—First, J. Dixon, Bradford. Second, F. Hardy, Bradford. *Chickens*.—First, W. Lawrenson, Poulton-le-Fylde. Second, J. Rawnsley, Gilstead.

ANY DISTINCT BREED.—First, W. Dawson, Hopton (Sultans). Second, J. Dixon, Bradford (White Polands). Highly Commended, J. Rawnsley, Gilstead (Black Polands); W. Cannan, Bradford (Malays). Commended, R. Tate, Driffield (Brahmas). *Chickens*.—First, J. Smith, Keighley. Second, J. Dixon, Bradford. Highly Commended, J. Dixon, Bradford.

DUCKS (Rouen).—First, J. Dixon, Bradford. Second, J. G. Sugden, Eastwood House. Commended, S. Shaw, Stainland.

DUCKS (Aylesbury).—First, W. Cannan, Bradford. Second, J. Crabtree, Royd House.

DUCKLINGS (any variety).—First, R. Tate, Driffield (Aylesburys). Second, J. G. Sugden, Eastwood House (Rouens). Highly Commended, J. G. Sugden; S. Shaw, Stainland; J. Dixon, Bradford.

GEESE.—First, Mary Green, Todley. Second, M. Mahoney, Goit Stock.

TURKEYS.—First, J. Dixon, Bradford. Second, R. Tate, Driffield.

EXTRA STOCK.—Commended, B. and A. Laycock, Woodville, Keighley, for Red Magpie, Archangels, Owls, Dun Carriers, Barbs, and Mottled Tumblers.

RABBITS.—Commended, S. Kirby, Thirsk.

THE RABBITS AT THE CRYSTAL PALACE.

AT no other place can one ever see such a collection of Rabbits as that assembled a few days since at Sydenham. People whose ideas of Rabbits begin with those they kept in their childhood (those unhappy pets, surfeited one day and then starved for three), and finish with a shudder at the sight of a row of those from Ostend hung up at a cheesemonger's—such cannot fail to be astonished when they see such a number of fine animals as those at Sydenham under the auspices of Mr. Houghton.

Rabbits are assuming a position of greater importance than they have hitherto held, both from the demand for them as articles of food, and by the introduction of new varieties valuable for the sake of their skins. As articles of food in England, the tame Rabbit is not appreciated. In many establishments it may be kept at almost a nominal cost. In France, especially in the south, in Provence, we have seen many places where the stock of

breeding Rabbits is never less than 60; and at one Reformatory near Aix the average stock is over 200.

But at present the fancy varieties demand our especial notice: the entries were numerous, the quality of the specimens unexceptionable. Our space will not allow a separate notice of each class: we must, therefore, refer our readers to the prize list. The most numerous entries were in the Yellow, and White, and the Self-colour classes. There is a great improvement manifest in the constitution of the lop-eared Rabbits now exhibited; and instead of being sickly, consumptive-looking animals, the majority of those at Sydenham appeared quite as hardy as the commoner sorts. The prizes were principally taken in the classes for lops by Messrs. Roffey, Hindes, Hincks, Angus, Haile, Bancks, Manby, &c.; and we congratulate these gentlemen on the beauty and quality of their specimens. The class for weight only brought six entries; but what it lacked in numbers was compensated by the quality and size of the specimens. The first prize was won by Mr. Charles Sellen with his grey doe; and the second by Mr. Murrin with a yellow and white doe one month older than the winner of the first prize.

The next class was a highly interesting one, and contained a variety of breeds. The first prize was won by Mr. John Baily with a very handsome pair of Chinchillas, or Silver Greys. These Rabbits, as they are becoming better known, are much liked. The second prize went to Mr. Charles Sellen for a fine pair of Himalayans. A very handsome white Angora buck and doe were much admired by all who noticed them.

We believe the awards of the Judges were satisfactory, and think the Rabbit classes of the Crystal Palace Show worthy of every encouragement Mr. Houghton can give them.

The Judges were Messrs. Fox, Housden, and Webster.

POCKLINGTON POULTRY SHOW.

The second Exhibition at Pocklington, under the auspices of the Floral and Horticultural Society, established last year at that town, took place on the 4th inst. in a field which had been kindly lent for the purpose by the Rev. F. G. Gruggen, situate on West Green.

The Show of poultry and Pigeons formed a remarkably attractive feature of the proceedings. There were about three hundred entries, and, if we may cite the opinion of one of the Judges, the classes of birds were not only of a fine and choice description, but surpassed those which are shown at exhibitions of greater pretensions than the one at Pocklington. In this department, the principal honour, in the shape of a silver medal, was awarded to Mr. H. Hodge, of Hull, who took the greatest number of prizes for Poultry, Pigeons, and Rabbits. We should be guilty of a want of gallantry were we not to add several of these handsome special prizes were the gifts of the ladies of Pocklington and neighbourhood. One peculiar feature of the Show was the exhibition of a number of Pea-hens and she Goats.

Spanish.—First, H. Hodge, Hull. Second, R. Tate, Drffield. *Chickens.*—Prize, H. Hodge, Hull.

Dorkings.—First, H. Adams, Beverley. Second, Mrs. Holtby, Haywold. *Chickens.*—First, H. Adams, Beverley. Second, G. Hutchinson, York.

Cochin-China (Buff, Lemon, or Cinnamon).—First, G. S. Simpson, Hunmanby. Second, H. Hodge, Hull.

Cochin-China (any other variety).—First, H. Adams, Beverley. Second, G. Hutchinson, York. *Chickens.*—Prize, R. Gatenby, Shipton. Highly Commended, H. Adams, Beverley.

Game (Black-breasted and other Reds).—Prize, H. Adams, Beverley. Highly Commended, H. Adams. Beverley. Commended, R. Tate, Driffield.

Game (any other variety).—First and Second, H. Adams, Beverley. *Chickens.*—Prize, H. Adams, Beverley. Highly Commended, — Beedham, Gowthorpe.

Hamburgh (Silver-spangled).—First, R. Tate, Driffield. Second, W. Simpson, Tickton.

Hamburgh (Golden-spangled).—First and Second, H. Adams, Beverley.

Hamburgh (Silver-pencilled).—First, J. Faulkner, Hunmanby. Second, R. Tate, Driffield.

Hamburgh (Golden-pencilled).—First, G. S. Simpson, Hunmanby. Second, R. Sugden, Howden. *Chickens.*—Prize, W. Simpson, Tickton. Highly Commended, R. Tate, Driffield.

Polish (any variety).—First and Second, H. Hodge, Hull. *Chickens.*—Prize, H. Hodge, Hull.

Bantams (Gold or Silver-laced).—First, H. Hodge, Hull. Second, A. Cattley, York.

Bantams (Black or White).—First, R. Tate, Driffield. Second, H. Child, jun., Birmingham. Highly Commended, R. Tate, Driffield.

Spanish Cock.—Prize, H. Hodge, Hull.

Dorking Cock.—Prize, H. Adams, Beverley.

Hamburgh Cock (Silver).—Prize, W. Simpson, Tickton.

Game Cock Sweepstakes.—Prize, R. Adams, Beverley.

Geese.—First, H. Kilby, Ousthorpe. Second, R. Tate, Driffield.

Ducks (Aylesbury).—First, R. Tate, Driffield. Second, W. Dorsey, Warter.

Ducks (any other variety).—First and Second, R. Tate, Driffield.

Turkeys.—First, Mrs. Holtby, Haywold. Second, R. Tate, Driffield.

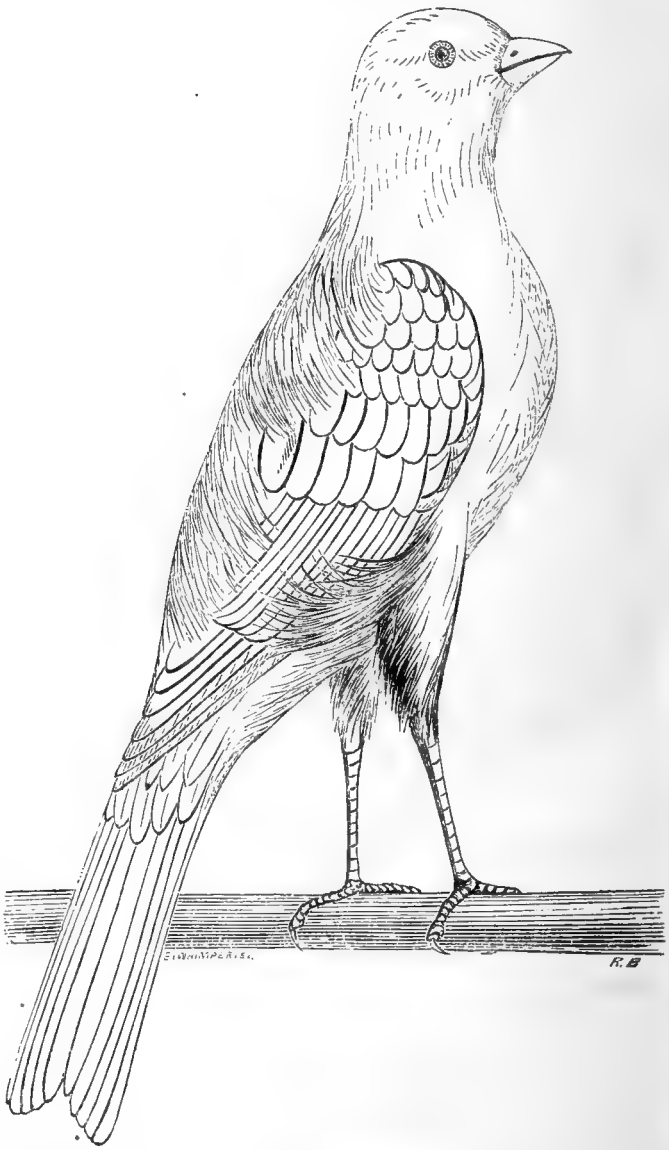
Pigeons.—*Carriers.*—First, H. Hodge, Hull. Second, H. Child, jun., Birmingham. *Powters or Croppers.*—First, H. Hodge, Hull. Second, A. Cattley, York. *Tumblers.*—First and Second, H. Hodge, Hull. Highly Commended, H. Child, jun., Birmingham. *Barbs.*—First, H. Hodge, Hull. Second, H. Child, jun., Birmingham. *Jacobins.*—First, H. Child, jun., Birmingham. Second, H. Hodge, Hull. *Fantails.*—Prize, H. Adams, Beverley. *Trumpeters.*—First, H. Child, jun., Birmingham. Second, A. Cattley, York. Highly Commended, J. Foreman, Wakefield. *Owls.*—First, H. Child, jun., Birmingham. Second, H. Hodge, Hull. *Turbits.*—First and Second, H. Child, jun., Birmingham. Highly Commended, W. Cation, York. *Any other variety.*—First, H. Child, jun., Birmingham. Second, J. Foreman, Wakefield (Magpies). Highly Commended, H. Child, jun., Birmingham.

Extra Prizes.—*Game Bantams*, Prize, H. Hodge, Hull. Highly Commended, R. Tate, Driffield. Commended, H. Adams, Beverley. *Hamburgh Cock* (Golden-spangled), Prize, R. Tate, Driffield. *Guinea Fowls*, Prize, R. Tate, Driffield. *Pea Fowls*, J. R. Hotham, Meltonby. *Best pen of Bantams exhibited*, Prize, H. Hodge. *Most perfect pen of Game fowls exhibited*, Prize, H. Adams. *Best pair of Pigeons exhibited*, Prize, H. Hodge. *Extra Stock*, First, Mrs. Holtby, two Turkeys. Second, Mrs. Storry, Nunburnholme, three young Aylesbury Ducks. Third, H. Adams, one pen of Andalusians.

THE CANARY AND THE BRITISH FINCHES.

(*Continued from page* 336.)

8th Variety.—The Erect Belgian.



The Belgian Canaries are admired for their great length and handsome form. They are pre-eminently birds of position, and are divided into three distincts breeds, or subvarieties—namely, the Erect Belgian, the Rough Belgian, and the Hooped or Bowed birds.

They are supposed originally to have been bred in Austria, and thence introduced into the Netherlands. We have received some from Holland; but our principal supply is from Belgium: hence their common name of Belgian Canaries.

A fancier, writing from Sunderland, says—"I have been a connoisseur in Belgian Canaries for a good many years, and have seen some hundreds of birds directly imported into this country from Belgium. I have also seen birds selected by fanciers, who went purposely for them, and selected them from some of the principal fanciers in Antwerp and Brussels; and from my own observations I am of opinion that there are at least two distinct varieties of the same breed—I have seen both plain and heavily-ruffled birds among them.

"There is one variety, a bold majestic bird, standing very erect and gracefully upon his legs. This bird is heavily shouldered, and the pinions are well squared on the tips, forming a hollow or cavity between them, which extends down the back. His form is very slender, and of great length; the head small and sleek; neck long and fine; breast very prominent and thin, with well-blown frill or ruffle enclosing it; he is also heavily frilled on his back, which forms a parting."

Of all the numerous varieties of Canaries, I think the Erect Belgian is the handsomest. It is many years since I first became a fancier of this beautiful variety while residing in that part of France which adjoins Belgium, and I had many opportunities of examining the collections of fanciers in that neighbourhood.

I have bred many myself, and consider them strong, hearty birds of good constitutions, good breeders, and excellent singers.

Their colour is usually, almost invariably I may say, Mealy and Jonque. They are the largest variety I know, measuring in length from 7½ inches to 8½ inches, and even 9 inches, from the tip of the beak to the end of the tail. I have even heard of their measuring 10 inches, but I do not vouch for the truth of such a report.

Their carriage is bold and majestic, carrying the head erect with a defiant air; the legs are long and moderately stout, well proportioned, and straight, yet not unnaturally so; the chest is rather full, and the feathers there fold over, and form a frill; there is also a slight puff of down upon the shoulders, rump, and thighs.

Their points of excellence consist in their erect carriage, great straightness from the back of the head to the end of the tail, but without stiffness—in the greatest length measured from the point of the beak to the end of the tail—in the length and straightness of their legs; in the compactness of their plumage, in being well proportioned; and in the general appearance of vigour and robust health.

The Rough Belgian differs from the foregoing in the exuberance of its down. The feathers on the breast fold over so much as to convert the frill into an irregular ruffle. The puffs of down on the shoulders, rump, and thighs are so large as quite to bury the wings when closed, and give the bird a very rough appearance, from which they derive the appellation of Rough Belgians. To such an extent does this attain in some birds, that they appear as if enveloped in a cloak of the finest swan's down, and are esteemed on that account. They are, however, not quite so long or majestic as the Erect Belgian. B. P. BRENT.

(*To be continued.*)

HECKMONDWIKE POULTRY AND PIGEON EXHIBITION.

THIS was held September 3rd. The Judges were — for *Poultry*, W. Hutchinson, Esq., York, and Joseph Truly, Esq., Keighley. For *Pigeons*—Mr. William Sykes, Sheepridge. The following is a list of their awards. There were about two hundred pens exhibited.

SPANISH.—First, J. Dixon, Bradford. Second, R. Poppleton, Horbury. *Chickens.*—First, W. Cannan, Bradford. Second, J. Dixon, Bradford.

DORKINGS.—Prize, W. Cannan, Bradford. *Chickens.*—First, W. Cannan. Second, W. Harvey, Sheffield.

HAMBURGH (Golden-spangled).—First, W. Cannan, Bradford. Second, W. D. Henshall, Huddersfield. *Chickens.*—First, J. Dixon. Second, W. Cannan, Bradford.

HAMBURGH (Silver-spangled).—First, J. Dixon, Bradford. Second, W. D. Henshall, Huddersfield. *Chickens.*—First, Bird & Beldon, Bradford. Second, J. Dixon.

HAMBURGH (Golden-pencilled).—First, W. Harvey, Sheffield. Second, W. Cannan, Bradford. *Chickens.*—First, W. Cannan. Second, J. Dixon, Bradford.

HAMBURGH (Silver-pencilled).—First, W. Cannan, Bradford. Second, J. Dixon, Bradford. *Chickens.*—First, J. Dixon, Bradford. Second, Bird and Beldon, Bradford.

POLANDS (Gold and Silver-spangled).—First and Second, J. Dixon, Bradford. *Chickens.*—First and Second, J. Dixon.

POLANDS (any variety).—First, W. Cannan, Bradford. Second, J. Dixon, Bradford. *Chickens.*—Prize, J. Dixon, Bradford.

GAME (Black-breasted and other Reds).—First, Crosland & Vickerman, Wakefield. Second, Noble & Ineson, Heckmondwike. *Chickens.*—First, F. Hardy, Bradford. Second, Noble & Ineson.

GAME (White and Piles).—First, Crosland & Vickerman, Wakefield. Second, H. Mason, Drighlington. *Chickens.*—First, Noble & Ineson, Heckmondwike. Second, Mrs. Greenwood, Rawfolds.

GAME (Black and Brassy-winged, except Grey).—First, Bird & Beldon, Bradford. Second, Crosland & Vickerman, Wakefield. *Chickens.*—First and Second, Noble & Ineson, Heckmondwike.

GAME (Duckwing and other Greys).—First, Crosland & Vickerman, Wakefield. Second, Bird & Beldon, Bradford. *Chickens.*—First, Noble and Ineson, Heckmondwike. Second, S. Scholefield, Heckmondwike.

BANTAMS (White).—First, S. Scholefield, Heckmondwike. Second, Crosland & Vickerman, Wakefield.

BANTAMS (Black).—First, J. Dixon, Bradford. Second, F. Hardy, Bradford.

GAME BANTAMS (Red).—First and Second, I. Thornton, Heckmondwike.

GAME BANTAMS (Duckwings).—First and Second, I. Thornton, Heckmondwike.

BANTAMS (Gold-laced).—First, W. Cannan, Bradford. Second, J. Dixon, Bradford.

BANTAMS (Silver-laced).—First, W. Harvey, Sheffield. Second, J. Dixon, Bradford.

BANTAMS (any variety).—First, S. Scholefield, Heckmondwike. Second, F. Hardy, Bradford.

SPANISH COCK.—Prize, J. Dixon, Bradford.

GAME COCK.—Prize, S. Scholefield, Heckmondwike.

BANTAM COCK.—Prize, I. Thornton, Heckmondwike.

BEST HEN (any breed).—Prize, Robinson & Parker, Heckmondwike.

BEST COCK (any breed).—Prize, T. Dodds, Ovenden.

COCK AND TWO HENS (not named in any of the other Classes).—First, W. Harvey, Sheffield. Second, W. Cannan, Bradford. *Chickens.*—First, W. Cannan. Second, J. Dixon, Bradford.

DUCKS (Aylesbury).—First, W. Cannan, Bradford. Second, G. Robertshaw, Dewsbury Moor.

DUCKS (Rouen).—First, J. Sheard, Heckmondwike. Second, J. Dixon, Bradford.

GEESE.—First, C. Bradbury, Heckmondwike. Second, W. Cannan, Bradford.

PIGEONS.—*Common.*—First, S. Exley, Heckmondwike. Second, J. W. Edge, Birmingham. *Carriers.*—First, W. Cannan, Bradford. Second, H. Child, Birmingham. *Tumblers.*—First, H. Child, Birmingham. Second, Bird & Beldon, Bradford. *Almond Tumblers.*—First, J. W. Edge, Birmingham. Second, W. Cannan, Bradford. *Barbs.*—First, H. Child, Birmingham. Second, W. Cannan, Bradford. *Turbits.*—Prize, H. Child, Birmingham. *Jacobins.*—First, H. Child, Birmingham. Second, J. W. Edge, Birmingham. *Fantails.*—First, W. Cannan, Bradford. Second, J. W. Edge, Birmingham. *Croppers.*—First, W. Cannan, Bradford. Second, H. Child, Birmingham. *Antwerps.*—First, S. Exley, Heckmondwike. Second, S. Scholefield, Heckmondwike. *Nuns.*—First, J. W. Edge, Birmingham. Second, H. Child, Birmingham. *Owls.*—First, S. Exley, Heckmondwike. Second, H. Child, Birmingham. *Extra Stock.*—First and Second, S. Exley, Heckmondwike.

SILVER CUP (for the best Pen of Poultry, any breed).—W. Cannan, Bradford (Golden-spangled Hamburghs).

CRYSTAL PALACE POULTRY EXHIBITION.

(*From a Correspondent.*)

HAVING read with very great interest the report in THE COTTAGE GARDENER of the late Crystal Palace Poultry Show, I trust you will permit your valued columns as a medium for some few further remarks, as I never visited any exhibition more worthy of commendation; although I, from partiality to the pursuit, make it a practice to attend most of the meetings now so generally held throughout the kingdom of a similar character, and am myself one of the most time-proved of the poultry fancy. It would be an injustice to Mr. Houghton, the Secretary of the Meeting, not to notice the extraordinary improvement throughout in the general arrangements for the poultry; all the exhibition pens having been very carefully re-coloured inside a very light lavender. This, combined with the pens being restricted throughout to one single tier, it is impossible for any of your numerous readers who did not visit this Exhibition to form even the slightest idea of the superiority, even at the first glance of the whole, to those meetings that have preceded it. It is almost needless here to insist on the by-every-one-acknowledged superiority of the Crystal Palace itself as a building to all other erections for the purposes of a Poultry Show. This, it is well known, was exclusively a *chicken* show; and in walking circumspectly through the various classes, it was satisfactory to notice that, with the exception of certain *Spanish* pullets that to my own and other breeders of this useful and highly-valued variety appeared far too matronly for the product of this present year, and a few undoubtedly "*very old Bantam chickens*," the entries were, without doubt, undeserving of censure. Perhaps, however, pullets of 1860 may be like in constitution to spinster ladies existing at like periods—they do not care about reflecting on earlier dates than absolutely compulsory. In the *Grey Dorkings*, as a class throughout, nothing could be expected better. It struck every one with whom I entered into conversation, however, that the pullets (unquestionably mere

chickens) in the *fourth*-prize pen, belonging to Mr. William Bromley, of Birmingham, who also took the first prize, were far superior to anything competing throughout the whole class. The cockerel, however (I should say from over-feeding), quite justified the award of the Judges, Messrs. Baily and Hewitt, as his legs seemed failing under the extraordinary weight, and *unnaturally* induced size they were called upon to support from "early maturity." It is impossible to expect, with any real hope, of ever witnessing it, a better collection of *Buff Cochin* chickens than was exhibited at the Crystal Palace. The great difficulty of the Judges must have been to select, when so many were quite worthy of first prizes. I never yet saw *Game* fowls so well and so impartially judged, no predilection being evinced by the arbitrators for any individual whim as to colour of legs, &c. There cannot be a second opinion, that among some of our juvenile judges of late the contrary has been the ruling passion; and individual fancy for feather or strain has evoked decisions quite adverse to what ought to be the *sine quâ non* in Game fowls—viz, capability to "hold their own," if subjected to the now-somewhat-retiring (but by no means extinct) usages of the cock-pit. It is well known to breeders of these varieties, that the *Hamburghs* (particularly the "Pencilled") never show to so singular advantage as when well-matured chickens. Here was a Show that those who missed seeing will be long before they have a repetition of so worthy an opportunity of witnessing. These classes proved generally interesting, therefore, to most of the visitors. It might, too, be asked with justice—When before has there been so goodly a competition in *Malays?* I unreservedly say, "Never." Among the diverse attractions of the any variety class, the *Cuckoo Cochins* were marvellously good chickens, forming, however, a very easy connecting link with their near relatives, the *Brahmas*, that certainly were shown in numbers and character equally worthy of all praise. In *Geese* it was scarcely to be expected otherwise than that Mr. Fowler, of Aylesbury, exhibited goslings quite worthy of the pen that for many years past were notorious as being "*the best of any.*" His Aylesbury *Ducks*, also, showed no deterioration whatever.

The *Pigeons*, to those who are more versed in this fancy than myself, appeared to be generally approved, and most attractive.

The *Rabbits* were undoubtedly the best collection ever yet got together on England's soil. Among them the Chinchilla or Silver Grey Rabbits were the most admired, and, perhaps, were never before so well shown. The "Hare Rabbits" were presented under a most questionable cognomen. It would be well had they never put in an appearance under so attractive an appellation. Those who, like myself, have for years attempted the "crossing" of these two perfectly distinct species of animals, well knowing that, when compulsorily coupled in confinement, apparent indifference at the onset invariably concluded by the most uncompromising disgust, and the utter destruction of one combatant or other, although previously reared from infancy sociably together. Besides, an insuperable difficulty arises from the fact known to those who have *reared* both Hares and Rabbits likewise in confinement and docility, as to the different period of gestation.

I think I may speak most confidently, that none of the Crystal Palace previous Shows ever exceeded the one just concluded, and it was most satisfactory to note likewise the perfect health of the generality of the competing specimens.

LIGURIAN BEES.

I have had three queens of *Apis Ligustica* from M. Hermann. The first my friends before she was added to the hive pronounced would fail, even doubting from her size if she were a queen. The other two I examined I found lively. They were added to the hives deprived of their queens on the 22nd of July; and on the 20th of August—*i.e.*, twenty-nine days after she assumed her regal position, the young Ligurians of one hive made their appearance in numbers. The other hive did not show its new and pretty subjects till nine days later. The cause of the earlier appearance in one becomes a subject of some interest, as I attribute it to circumstances over which the bee-master has complete control; and although this hive is a larger one, and with proportionately more bees in it, yet I feel satisfied that its earlier and besides greater number of Ligurian bees being produced, is chiefly ascribable to their hive being kept in a bee-house, and well covered up with cloths, &c.

I fed both hives well, for during the very cold and wet weather warmth and food were necessary to insure success. I have seen no Ligurian drones out; but from the less successful and more exposed hive, I have noticed a few young drones, which I believe were Ligurian, had been pulled out of their cells in an immature state, and turned out.

It is said there exists a strong antipathy between the common black bee and these smarter and more handsome fellow-labourers. With the queen which was added to the exposed hive there were a dozen Ligurian workers, of which, upon one occasion, when I removed the feeder, two were in it. It became interesting to watch these rejoin the hive by the regular entrance, when I noticed that whilst on the alighting-board whenever a black bee came to the Ligurian it did not seem fully at ease, and commenced fanning with its wings. This it did many times before it went in, leaving an impression that it was not altogether at home, just as may be observed soon after fresh bees have been added to a hive, these for some time may be noticed acting in the same manner. The young Ligurians in the other and more successful hive did not appear to enter upon the working duties of gathering a winter's store until about eight days after their coming out; and although now they seem numerous, I have remarked, that whilst many of the other bees are active in carrying in pollen, no Ligurians have yet been seen to do so, raising the question whether the duties of supplying bee-bread do not devolve upon the older inhabitants.

I may mention that the more successful hive is an eighteen-inch square straw one, with wooden bars; and some portion of the better result and more numerous appearance of Ligurians is justly claimable to there being ample vacant cells for the queen to deposit the eggs in. The other hive is a large one of the old form.—J. W. Wooler, *Darlington.*

SECOND SWARMS.

Authorities on the bee inform us, that second swarms may be expected from the eighth up till the twelfth day after the first, and that a queen bee is fully developed the sixteenth day from the egg. How am I to reconcile these statements with the following occurrence in my own apiary this season? I had a stock-hive which threw a top * on the 8th July. It was strictly watched; and on the morning of the 24th, contrary to my expectation, commenced the usual double piping. Resumed that evening, the morning and evening of next day, and the morning of the following, the 26th July, on which forenoon, the eighteenth day, the second came off. Unsettled at first, it finally took up its quarters on the top of an old yew, sixty or seventy feet from the ground. It was hived therefrom all right, and subsequently settled. Now, what could have been the cause of the delay, the eight days preceding the exodus being all fine, and seemingly very suitable? Supposing the last act of the retiring monarch had been the depositing an egg in a royal cell, have we eighteen days to mature the young princess, now the reigning monarch of the hive? Your opinion would oblige—A Young-Bee-keeper.

[When a queen leads off a first swarm she usually leaves behind her numerous royal embryos of all ages. The late ungenial weather has been so unfavourable to the maturation of royal brood, as to render it more than probable that all the more advanced princesses perished in the last (generally also the most fatal) stage of development. This alone may account for sixteen days' delay; and when, in addition to this, it is remembered that queen bees, like all others, quit their cells in so immature a state as to be unable to fly for some days (about five, we believe), it will readily be perceived that the intervention of eighteen days between a first and second swarm, although somewhat unusual, is only in character with the recent abnormal season.]

* *Query* first swarm?—Eds.

OUR LETTER BOX.

Feeding Doves (*J. B.*).—Buckwheat, with an occasional change of Canary-seed and wheat, is the best food for Doves. Gritty sand, and clean water for drinking and bathing, are requisite, also a little green food. The young are fed by their parents.—B. P. B.

Exhibiting Game Bantam Cocks (*J. B., Carlisle*).—It is far better that Game Cocks of all breeds (whether Bantam or otherwise), should be dubbed before they are exhibited. At all winter shows it is essential. A Game Bantam should be close and hard-feathered, and should carry his wings well up, not drooping like any other class of the same breed. Neither should the tail be thrown up over the back like a squirrel, but should be rather sloped than otherwise. Both cock and hen should have snake-like heads; the hen's bright, single, upright, well serrated combs, and the plumage of both be hard, as if composed of one feather only.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	SEPTEMBER 18—24, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock afterSun	Day of Year.
18	Tu	Gnaphalium margaritaceum.	30.012—29.934	66—49	W.	·28	42 af 5	6 af 6	55 6	3	6 3	262
19	W	Ember Week.	29.869—29.825	65—35	N.	—	43 5	4 6	29 7	4	6 24	263
20	Th	Gnaphalium sylvaticum.	29.896—29.724	66—49	N.W.	·22	45 5	2 6	13 8	5	6 45	264
21	F	St. Matthew.	29.458—29.348	61—43	S.W.	·18	47 5	v	11 9	☽	7 6	265
22	S	Sun's declin. 0° 7′ N.	29.703—29.566	64—46	S.W.	·11	48 5	57 5	18 10	7	7 27	266
23	Sun	16 Sunday after Trinity.	29.751—29.578	70—51	S.W.	—	50 5	56 5	28 11	8	7 48	267
24	M	Gnaphalium rectum.	29.836—29.773	78—51	S.	—	51 5	52 5	morn.	9	8 8	268

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 66.6° and 45.5° respectively. The greatest heat, 81°, occurred on the 20th, in 1843; and the lowest cold, 29°, on the 20th, in 1856. During the period 125 days were fine, and on 106 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Artichokes (*Globe*), cut off the stems as fast as the heads are used. *Cabbage*, the main spring crop may now be planted—the small dwarf sorts at eighteen inches row from row, and about fifteen inches plant from plant. *Cauliflowers*, prepare the ground for the plants that it is intended to protect with hand-glasses; the soil to be rich, and, if possible, under a south wall. Nine plants can be placed under a good-sized hand-glass, and in the spring five or six of them can be taken up and planted elsewhere. *Carrots*, sow a few in a sheltered place to stand the winter. *Endive*, tie up for blanching as wanted, and plant out some of the latest in a sheltered corner where they can be easily protected if necessary. *Dwarf Kidney Beans*, if a supply will be required through the winter, a sowing should now be made in pots half filled with soil to allow of the plants being earthed up. *Gherkins*, to be gathered for pickling purposes as they arrive at the fit state. *Mushrooms*, the beds, if recently made, to be spawned as soon as the heat becomes moderate; when earthed to be well beaten down, as solidity is one of the principal causes of productiveness. *Onions*, sow a few of the Welsh, they may come in useful when such things are in request. The decayed flower-stalks of *aromatic herbs* to be cut down, and the beds cleared of weeds; the roots divided, if increase is required, and the tops, if not done before, dried for keeping.

FLOWER GARDEN.

Look to the Dahlias and Hollyhocks, occasionally to secure them against the effects of high winds. The decayed flower-stalks of herbaceous plants to be removed, and such as are still in bloom to be carefully tied up. Look now and then at the late-budded Roses, and loosen the ligatures if too tight. Any long shoots from buds to be pinched back to half their length. If left at full length they are apt to be blown out by the winds. Remove all shoots and suckers from the stock.

FRUIT GARDEN.

Fruit gathering should now receive frequent attention. The fruit to be kept in a cool and airy situation, to allow the moisture that arises on the fruit for some time after gathering to evaporate. Particular care to be taken in handling them for long keeping; and the fruit-room to be frequently looked over, to remove all damaged or spotted fruit for immediate use. Trim and dress Strawberry plantations, and be careful neither to injure the leaves of the plants that are left by cutting them, nor the roots by deep digging between the rows.

STOVE.

This house to be tastefully arranged, and the heat and humidity to be curtailed by degrees in accordance with the decline of solar light. All plants that require it to be top dressed, and all imperfect drainage to be corrected, more especially the established plants that have been repotted for some considerable time.

GREENHOUSE AND CONSERVATORY.

No time should now be lost in getting these structures in readiness for housing the collections when a change in the weather is apparent. As the season is now so far advanced when changes of weather are frequently sudden, it is advisable, when preparations have been made, to house them; the houses to be kept open night and day after the plants are placed, only reducing the ventilation when unfavourable changes in the weather take place. The Orange trees to be placed in their winter quarters; the drainage to be thoroughly examined, the roots top dressed, and a good fumigation of tobacco smoke applied. Cinerarias to be repotted.

PITS AND FRAMES.

These should now be furnished with bulbs of the most approved varieties for forcing; Pinks in variety, more particularly the *Anne Boleyn* and *Paddington;* Neapolitan and Russian Violets, and sturdy young plants of Wallflowers in variety. Bring the propagation of all the more important bedding-out plants to a close as soon as possible, as late-struck cuttings are difficult to keep through the winter. Cuttings of Geraniums, when rooted and potted, to be kept close in a frame for a week or two, and then exposed night and day in favourable weather to harden them off for the winter. Cuttings of Verbenas, Petunias, Heliotropes, &c., struck in pots or pans, and intended to be kept in them through the winter, to be treated in a similar manner until they are placed in their winter quarters. Cuttings of Calceolarias put in towards the end of the month will strike in a cold frame, where they can be easily protected with litter in severe weather.

W. Keane.

KEW ARBORETUM AND PLEASURE-GROUNDS.

(*Continued from page* 354.)

This front page of The Cottage Gardener will give a fair idea of the shape of Kew Gardens, including the public and private grounds enclosed. The right side of the page represents the road from Richmond to the corner of Kew Green; the left the river Thames; the black line across the top, under "Weekly Calendar," shows the sunk fence between Kew and Richmond fields, and that sunk fence is carried all down between the river and the grounds, leaving a towing path, a public path, and a moat between them. The moat is from fifteen to twenty feet wide, more or less, according to the floods and tides; and along the Richmond road is a high boundary fence. My route to day extends from the left corner of the page, the Richmond Lodge and across the top. Opposite the right hand corner of the page is Sion House; and from opposite Sion House I follow the course of the river to the bottom of the page, or to the Palace grounds, winding into the grounds inwards, upwards, and down dale, as the walks lead to, or my ideas prompted me.

These grounds are over two hundred acres in extent, and for all practical ideas may be considered a dead level, a few feet—say five feet, above tide mark, and without a single distant view until you emerge on some part of the

boundary: therefore, all landscape ideas, rules, and incidents, must have been created and carried forward on their own merits, as we say of a single flower-bed which has no help from other beds or borders; and of all the things in this world, landscape gardening is the most difficult of execution on flat grounds without views from them. Before Kew was altered to the present style it was the best example we had in England of our free-and-easy mode of dealing with flat surfaces by means of judicious planting and easy winding walks. The change from this has added some of the best features of the geometric style—such as the terraces, the long vista walks and avenues, the waterworks and architectural elevations—and Kew Gardens are now in the mixed style; and, considering the difficulties which the artist never fails to encounter in altering from one style to another, the mixture is very satisfactory, and will be more and more appreciated as the growth of the planting will mark the features more and more prominently.

In going from the left corner along the top of the grounds we came to an iron barrier—say at one-third of the distance from corner to corner: so far the public may go at present. A little farther on is the best sight of Rhododendrons, perhaps, in England, if you except Highclere; perhaps, also, they are the oldest planted in England; and they were planted in the grounds or garden of the "Queen's Cottage," a half Swiss, half old-English-looking retreat—once gay enough, no doubt, but now only a private reminiscence of "Auld Lang Syne."

If twenty acres had then been planted with these Rhododendrons, there would be nothing in Europe now like them. It is their rude health and the seeming yearly increase of their strength which strike one so much more than their actual size; the longest of them being about twelve feet high, and from twelve to fifteen feet in diameter, and a perfect pot-specimen-like plant, full on all sides, and sweeping along the grass with unusual luxuriance. The stem being six inches through; but some having grown into many plants are much thicker in the stem; but no one can reach into them from the arms and cross boughs in the way. Arbutuses that were planted at the end of the cottage ten years back are just as healthy and growing as fast; both kinds in the moist sandy soil of the district. The front of the cottage is characteristic enough, covered with climbers and creepers, and the Virginian Creeper hanging down in easy pendants from every point and corner.

There are thirty acres of ground enclosed with this cottage, which are additional to the two hundred acres within the "ring fence." The greater portion of this land was recently added, in order to square the boundary-line; and from eighteen to twenty thousand plants, in trees and shrubs, from their own private nursery, were used to plant it—first, on the model of the rest of this part of the pleasure-ground; and, secondly, to clothe the ground at once, and nurse up the permanents. That is how they make things pay, and be thus able to keep an experimental nursery of considerable extent to the bargain. Many thousand bush plants could now be well spared from the new planting. It was there I saw such quantities of *Ceanothus americanus* and *intermedius* in full bloom, in the most exposed situation from one end of the Thames to the other. In 1834 I saw the same profusion of *C. americanus* in the nursery of the Messrs. Pope, at Handsworth, near Birmingham, and I never saw the plant in any other English garden or nursery before or since, and there is not a gardener in fifty thousand who knows the plant or had ever seen it—one of the most useful autumn little flowering shrubs we have when done as I said last week. When Loudon wrote his "Arboretum," none in the London trade knew how to manage this plant or tell him how to do it.

At this corner, opposite Sion House, and down the whole length of Kew Gardens, the moat is entirely and altogether in the possession of the Water Witch; and of all the witches the Water Witch is the greatest enemy to us gardeners and to our waterworks. A witch once sailed to America in the shell of an egg—my grandmother told me so; and people tell me now this Water Witch came from America, and if so, probably in that very shell. At all events, our fountains, basins, lakes, canals, mill-streams, ponds, and pools, will, in a few years, be half choked up and half useless through this very plant; and some have found it already the dearest plant that ever was introduced. My word for it, the people at Kew will find out its bewitching influence ere long, unless some one has a charm to render it harmless. The Water Chickweed is another name for it, and the book name is *Anacharis alsinastrum*. At the Crystal Palace it has full possession of some of their best basins, and it will cost them a round yearly sum to keep it down so as to allow the fountains to play. You will find it in the grand circular basin behind the water temple. So, if you have anything you value above a duck pond, keep your eye on it against the Water Witch, or you will rue it when you cannot help her spell. From having raised so many seedlings of common things here, you see new forms of Laburnums, Spiræas, and other shrubs along these new plantations, and no doubt something will be got at the origin thereof.

But, on, on, on we go, and wind and turn till we come to a point where we see the first inland port in England, after the port of London. This is opposite the bottom of the page for Kew, at Brentford, and is the watermouth of a branch from the Great Western Railway. Then another iron barrier and we are out on public grounds, and soon after in front view of the grand new lake that is to be towards the extremity of the long vista avenue in that direction, which is at right angles with the axis of the great Palm conservatory from which it starts. First, through the American Garden, then through the Pillar Rose Avenue, and after then in a full half-mile stretch to the brink of the moat, and all on a dead level, as far as one could judge by the eye. In the centre of this avenue is a walk twenty-four feet wide, and twenty-four deep of good gravel; the subsoil in that direction being a bed of gravel. The avenue is formed by two rows of Deodars, which run on either side at a distance of seventy-five feet from the centre of the walk, with a Lime tree between each pair of Deodars, and two rows of the Umbrella Acacia in standards, and ten feet from the sides of the walk.

On the left-hand side, looking down from the west entrance of the Palm-house, and near the extremity of this avenue, stands the ground-plan of the new lake; and the Deodar-line of the avenue at that part skirts the very edge of the lake on that side. The banks of the lake are rounded, and a collection of the different Piceas planted on the sloping banks. *Picea bracteata* being the newest and one of the finest of them. There are, also, fine specimens of standards of the different Weeping Willows planted on these banks, which, when the whole are well clothed with such suitable kinds, will look remarkably well. There are three or four islands in the lake, some of which are well clothed already with old standing trees, and the rest are planted with kinds of Willows and other trees. The bottom of the lake is not yet cleared out. It is chiefly of gravel, and the bulk of it will be removed to form the terrace round the new, large range of conservatories which are in the course of construction, but not yet so forward as to allow the bottom of the lake to be cleared to make the terrace, and thus kill two birds with one stone. Here, then, is a sure sign of forethought, good management, and two strings to one's bow, to shoot up from the bottom of the lake to the top of the terrace. Verily, if all public grants were thus economised and made the best of, there would be no need of cooking the schedules of the income-tax papers. The extent of the lake will be quite five acres when fully completed. Even as it is, it has already proved a most remarkable fact—

which is this, that there are more fresh-water sailors in London than volunteers. The *Illustrated London News* gave a plan of the lake as it will be; and these worthies went down in shoals, by the wrong end of the rope, to see it in their element, bothered the guides out of all patience to know its whereabouts, and finding it still a gravel-pit, ankle deep in water, they changed the quid, hitched their nether canvass, and went back in high dudgeon.

Keeping still in sight of the Thames, we have Mount Pleasant in our front, opposite the extreme end of the lake that is to be—a recent name for the pleasant opportunity of piling up the extra soil in making that end of the avenue so close at hand. Mount Pleasant, like Arthur's Seat, in Edinburgh, is too steep on one side to get up at all that side, therefore was planted from their own stores, of course. On the opposite side you can ascend by easy gradients to different levels and "flats" till you reach the summit, which is flat also, and an *Araucaria imbricata* is planted in the centre of it. Here is a rich view of a sweep of the Thames on to Isleworth; and another sweep in the walk, in the direction of London, brings you to the head of the Rhododendron valley, the Sikkim of Kew, and the land of Goshen for country planters of that fine tribe of evergreens. Whether this valley is some flaw of Nature or the work of giants of a former age you are not told; but to form an idea of it you should read Dr. Hooker's journals of the far-off end of the Himalayas, and I can tell that all his toil and troubles in these regions are already paid for in the health, looks, and variety of his Rhododendrons, all of which that will stand our climate are out in large beds, along the bottom and sides of the route the whole way. They are there in the shade of lofty trees; and as soon as they are of the size of specimen plants, they are removed from the beds to be planted out singly, and at suitable distances apart from one another, and from your eye, along the grassy slopes of the enchanted valley. After them come all the hardy Heaths in their order; and one of them looks like what our Irish cross-breeder is driving at, as if it were a cross between the tallest of the Scotch Heather and the smallest Bell Heath—the Cape *gracilis* perhaps, or may be by a crimson Epacris. Who can venture an opinion on such origins? The name of that Heath is *Alportii*, and you must order it this fall, for it is the showiest of the race.

But we have not yet done with half the races of Rhododendrons. All the celebrated breeds in the kingdom are represented in and about the valley, from Highclere to the Kinoul nurseries at Perth. The last addition is some fine strains of Lord Liverpool's Rhododendrons, from Kingston here; and one of the best of them is tallied "*Billy Hoare*," after Mr. William Hoare, a trustworthy attendant on that very family at Kew, for the last thirty years. *Hodgesonii* is the finest leaved of the Sikkims, and one of the largest leaves amongst them. It is as smooth as a Magnolia leaf, and as big as the rough woolly-looking leaf of *Falconeri*, and both are doing there remarkably well. But I need not name sorts—everybody will now go to that valley; and I will go out of it to the right, and what should meet me next but a large bed of the larger Asiatic Berberis, to prove a fact which Mr. Standish, of Bagshot, first discovered or made known to us first.

The fact is, this *Berberis japonica* and the like of it, as you will see at page 290 of the nineteenth volume of The Cottage Gardener, will do better under the deep shade of tall trees, and here were one hundred of them from Mr. Standish to prove it, in the midst of a forest, as it were; and well they certainly looked, proving the proof of the pudding, for not one out of the lot failed. Here we got on to the "Princess Walk," and there found the finest specimen of Beech I ever saw, sweeping the grass all round it, and rooting its branches in the common soil—a thing one seldom sees or hears of; it is ninety-eight yards round the tip of the branches as they touch the grass. And along that walk may be seen many fine specimens of park and timber trees. At the London end of the Princess Walk, another crosses and goes to Brentford ferry, another way of reaching Kew Gardens. Between that walk and Kew Palace is the Park Nursery of four acres, reclaimed from a piece of almost waste ground. The idea of it is due to Lord Llanover when he was Sir Benjamin Hall and First Commissioner of Works. Sir William Hooker took it up in the spirit of a volunteer; and I would back these four acres at this moment against an equal number of the same description of trees in any part of Europe—in fact, there is nothing under the British crown at all like it. I never saw such fine healthy-looking and such well-selected stock in all my experience.

Talk about botanists being mad for collections, why *we* have been all mad without knowing it. The collection consists of half-a-dozen kinds only, and three kinds are the principal stock over the whole four acres—the true English Elm, all from grafted plants. The Elms are numerous, but this, the *Ulmus campestris*, is one of the best of them for the parks; seedlings and layers of it are so prone to throw up suckers that it is necessary to have it grafted very low, and to see that the graft does not touch the soil at planting finally out that it may not take root, and make suckers. The Scotch Elm, *Ulmus montana*, is the best stock to graft it on, and the next best Elm for parks and pleasure-grounds. The thousands of standards of both these ready, and getting on that way, for final planting will be seen from the figures below.* The tallest and largest-headed of these are planted six feet row from row, and in the centre, between the rows, are single lines of common Hollies doing better in the shade, and coming away with freer leaders than are ever seen in the open quarters at that size and age. They are completely taken up and transplanted after every second growth, so as to keep the roots near home, and render them more sure for the last move. Their health and symmetry are faultless.

The third tree of which they have the largest stock is the "Park Plane tree," which is neither the *orientalis* or *occidentalis*, but the variety of the former called *acerifolia*, the finest park tree in the world for our climate, also the hardiest when young and full of sap; their heights and numbers are also below, but that gives no idea of their rapid growth and vigorous, healthy looks. They come from cuttings freely, and after a couple of seasons' growth they are cut down to the ground, in order to open a more free communication between the roots and the stems. The average growth of thousands of them in 1859, after being so cut back, is seven feet; and last winter did but just nip off the tips, and now they average twelve feet in two growths, and no sign of the frost-mark is visible. Never plant another tree of Platanus in British soil but this *acerifolius*. The value of this one tree at the lowest figure of a country nursery is far beyond the whole expense of these four acres from first to last. And the value of the lesson we are thus taught is much more than that.

One-half of the foresters, two-thirds of us gardeners, and nine-tenths of the amateur classes, err grievously in the first setting off of young plants, be they trees or

	Height.	Number.		Height.	Number.
* PLANES	2 feet	1800	ELMS	5 feet	1160
,,	3 feet	207	,,	6 feet	3544
,,	4 feet	811	,,	7 feet	5958
,,	5 feet	1892	,,	8 feet	511
,,	6 feet	720	,,	9 feet	2193
,,	7 feet	1594	,,	10 feet	1568
,,	8 feet	2286	,,	11 feet	1782
,,	9 feet	650	,,	12 feet	1035
,,	10 feet	846	,,	14 feet	1368
,,	12 feet	558	,,	15 feet	1374
,,	14 feet	600	,,	16 feet	470
			,,	18 feet	162
			,,	20 feet	182
			,,	24 feet	153

therwise. We all plant on the same level; we agree about the roots being a reservoir which is to fill and feed a huge system. A big root is like a big glazed-pipe you see them laying down for sewers; a big branch is like another pipe that is much larger and between the two; and, between you and me, the unthoughtful will leave a small four-inch pipe; and it stands to reason the small pipe will neither empty the large one from one end of it, nor fill the large one from the other end thereof. Now, practically speaking, there is not a hair's breadth of difference between the working of such pipes and the flow of the sap between the roots and branches in the bad system of managing young plants—fruit trees or forest, climbers, and what not. A man plants a pillar Rose, or a Glycine, or say a Vine; it runs up so many feet the first season, and he cannot "find it in his heart" to cut it back to the last eye. After that he must leave a certain length, and that length, most surely, will represent the four-inch pipe for the rest of his life; and instead of gaining time by leaving a length of shoot the first season, he loses time and strength of limb, and weight of flowers or fruit every year in succession. The good planter, on the other hand, will cut back his plants to the collar once and again until he is sure and certain that his middle pipe is of the same bore and capacity as the one before and behind it. But another turns round, and says, "Man alive, my pillar Rose taught me that lesson without your book! I left it seven feet odd at the first cutting. I had the four-inch pipe sure enough, but the suckers from the collar the second year were of the full bore throughout; and you never saw such Roses as I had then and since." Of course you had; but you are only one out of many: and so we parted. From the garden of the late King of Hanover one would think that *Planera Richardi* would make as good a park tree as any of those named above. Has it ever been tried? and what its character under ten or twelve years of age? D. Beaton.

CUTTINGS OF PERILLA NANKINENSIS—WHITE-LEAVED GERANIUM.

Will *Perilla nankinensis* propagate from cuttings? If so, what is the best time for striking them?

I have endeavoured to produce a white-foliaged bedding Geranium; and I believe I have succeeded so far, that I have three varieties of light yellow without any sport of green. One has a pink Horseshoe. Would these be worth propagating as bedders for ribboning? One is a sport from *Mangles' Variegated*, and has pink flowers. The Horseshoe is from a Geranium called *Commander-in-Chief*, and the other a sport from a seedling of my own.—East Anglian.

[*Perilla nankinensis* grows from cuttings as freely as a Balsam, and August is the best time to propagate it; but it is not yet proved if cuttings of it will keep over the winter. Seedling plants of it will not keep over the winter if they are from spring sowing certain; but autumn-sown ones would keep, probably, easily enough, and for early work that will have to be adopted. We are going to try a batch of struck cuttings of it this winter to settle that point. No one has yet done any good with the common white sports from *Mangles' Variegated* and *Commander-in-Chief* Geraniums, nor any of that class of sports. They either die under a bright sun, or revert to the mother type; but if you have them thus early rooted, it is worth while to follow them up, and see what this strange season may have effected in them.]

HARDY ORCHIDEOUS PLANTS.

(*Continued from page* 360.)

Summer Treatment.—This period of the culture of those interesting plants commences as soon as they begin to grow, and ends when they go to rest. The summer operations consist of watering, sheltering, tying up the flowers, weeding, and stirring the surface of the soil when that becomes hardened and grown over with lichens. On each of those points I shall briefly write, in order to show the amateur the proper way to conduct them.

Watering.—This necessary operation, especially for such as are grown in pots, I have already adverted to; but I may remark in addition that the quantity required should be given according to the need of plants. In the early months of the year, whilst the vegetation is slow and young, very small supplies of water will be required, and that at wide intervals. If kept in this early stage of growth very wet, the young roots, and probably the young shoots also, will damp off, and the plants will perish: therefore, let the surface of the soil become dry before water is given, and then only just sufficient to wet the soil. Let this water be absorbed before the next is given. As the foliage advances in growth more water may be given; and when the leaves are fully expanded and the blooms beginning to open, then a liberal supply must be given. If gentle showers are falling let the plants have the benefit of them; but at all seasons shelter them from heavy continuous rains. Some strong-growing species will thrive better with a watering now and then of weak liquid manure, to which add a handful of quicklime to every gallon. This destroys worms and slugs in both a young and full-grown state.

Shelter.—If the plants are in pots and in a cold frame, the appropriate shelters are glazed lights. These should be put on during heavy falls of rain or hail, or even strong gales of wind; but, then, air should be given by tilting the lights behind—closed frames in wet weather being very unhealthful to these somewhat tender plants.

Tying.—As the flower-stems advance in height neat sticks should be carefully thrust into the soil, keeping a sufficient distance off the fleshy tubers. Tie with soft bast mat, and tie it loosely, so that the stems will not be strangled, and spread out the flower-stems when numerous that each may stand clear by itself. Nothing looks so slovenly as flower-stems huddled together in bundles like a birch broom, and, besides being ill-looking, the plants sustain a serious injury when the stems are tied so closely together. The leaves do not obtain light, and, consequently, turn yellow and drop off—a misfortune that prevents the increase in size of the plant.

Weeding and Stirring the Soil.—The best management of weeds is never to allow them to advance beyond the seed-leaf. The labour of weeding is lessened thereby, and the nutriment of the soil saved for its legitimate purpose—the support of the cultivated plants, and more especially the benefit will be felt by plants that have to draw their support from the limited pasture of soil contained in pots. The soil in pots by frequent waterings becomes crusted on the surface, closing it against the admission of air and heat to the roots; hence it is benefited largely by stirring the surface whenever it becomes hard. A small stick is as good an implement as any for this purpose, care being taken not to disturb or injure the roots or stems in performing this operation. Besides opening the soil to the kindly influences of the atmosphere, it gives a freshness and neatness to the collection, and prevents the growth of mosses and lichens. In the autumn this stirring of the surface by admitting air to the interior of the soil assists the ripening of the tubers and fibrous fleshy roots, and thus hastens the period of rest.

Let all the points of summer daily culture be duly attended to, and it will be found that the plants will perform their functions, and will abundantly reward the cultivator for his trouble and attention.

If any of these hardy Orchids are cultivated in a bed or border, the summer culture in regard to the above particulars of culture is nearly the same. The only difference will be the kind of shelter to give them. The best shelter is that formed with bended hoops and either garden mats or oiled canvass, the latter being the best for keeping off heavy rains. A shelter from the burning rays of the sun acting too powerfully upon the soil may be necessary; and the best shelter for that purpose, as I have repeatedly proved, is green moss. A bed covered with that non-conductor gives it a fresh and lively appearance, and adds largely to the health of the plants.

Winter Culture.—The operations for winter culture are few and easily done and attended to. The plants in pots should be placed under the shelter of a pit or frame, and the lights should be kept on in wet weather to keep off the rain, and thus keep the plants in a quiescent state. I should recommend the plunging the pots up to the rim in coal ashes or sand, and in very hard frost the glass should be covered with mats; but on all fine days the lights should be drawn off entirely, and, in wet, muggy weather, propped up behind, to allow the escape of damp air. Of course, all the decayed leaves must be cleared away, and

any other substances that would give out foul smells. Such as may be growing in a bed or border should be protected from slushing rains and frost, by covering each plant with a small hillock of dry ashes, to be removed when the growing season commences. If a bed has been formed as I recommended above, the plants in it when at rest will be all the better if sheltered from heavy rains, frost, and snow, by covering the bed with hoops and oiled canvass. Let it be remembered that these rare plants are well worthy of every care. T. Appleby.

(*To be continued.*)

BLOOMING THE KAFIR BROOM.

Seeds of both the Granadilla and the Kafir Broom were sent me from the Cape of Good Hope, and I have succeeded in growing the Granadilla very well; the Kafir Broom not so well, but I cannot get either of them to flower.

I enclose a leaf of a Solanum, to ask you to tell me the distinguishing name, and whether it is one of the poisonous ones. —M. R.

[If you ripen the young growth of the Kafir Broom by free exposure to light and air, and keep the soil rather dry, it will bloom.

In a genus numbering, according to the latest enumeration, more than 900 species (albeit many of these are false species), it is quite impossible to identify a plant by a single leaf. Yours may be *Solanum verbascifolium*, var. *viridi-scabrum*, and not unlikely is so, and most probably poisonous.]

A REVIEW.

(*Continued from page* 361.)

There is a Scotch proverb purporting "A ganging foot, to be aye gettin." So a few lines more about what I have seen in my "gangings," will be getting further space in these pages. What I did not see was the Spring Flower Show at the Crystal Palace, by consequence of the "Derby" people having run off with all the lodgings. I should have seen the grand Rose Show there; but when we arrived in London we found it postponed, for which I was sorry; but my face became round as possible when I heard the Orphéonists, and concluded the day in adieus long to be remembered. I shook hands with two hundred of the Frenchmen at the least, and shouted "*Bon voyage*," and "*Vive la France*." How they fraternised with the Volunteers! How many of them turned to scrutinise that rifle in possession of one of the Queen's Westminsters! One in particular I noticed, thoughtfully scanning it over and naively expressing it was a "useful éenstrument," as he turned away with a shrug of the shoulders, as only a Frenchman can. I grasped his hand and sang out "*Vive la Liberté*," and all was joyous again.

Well, I have not joined the Volunteers, but should the possibility require it, I am as certain that I should do so as I am that I should not go to a register office to get married; and this led me to Wimbledon Common to see the Queen fire the first shot.

Opinions are divided as to my sanity about the sum of money I gave the sod-cutter for a few square feet of it, to raise me up to catch a glimpse of the act. Hurrah! but there could not be two opinions amongst the thousands that surrounded me. The place was a marsh; but I had, luckily, on a pair of thick Wellington boots; so, Knickerbocker fashion, I scoured the Common with the best of them; and once, as Her Majesty's carriage stopped between the "Butts," I was fortunate enough to gain her eye as she bowed, which circumstance was worth wading through any amount of mud to be favoured with. Afterwards I took tea with a friend on Putney Heath, and inspected a very pretty garden; then wended my way to the bridge, and there, with many more on the top of an omnibus, awaited the driver's long, long pleasure to take us to London.

I went a roundabout way to Kew, for I wanted to see as many nursery gardens as I could by the way. From London to Putney, in the nurseries right and left, the deciduous and evergreen trees and shrubs never looked better. In fact, this might be said of all of them in all parts of London, excepting the Plane trees in the Parks, the early leaves on which, as a friend expressed himself in regard to the early foliage on my Grape Vines, appeared "blown to tinder." Walked through Putney; turned to the right by the railroad, and within half a mile, up a Sweet Briar walk—delicious—in full bloom, through a market garden where the crops of Cherries, Pears, and Apples showed fair soon to weigh the trees down; along Putney Park road and lane, and across to the Bishopthorpe station; from thence by rail to Kew Bridge: everywhere market gardens showing an abundant feature, though the Strawberry-beds looked patchy. Now the rain came down in earnest, foreboding a minimum of pleasure for the gardens; so back in an omnibus, noticing Lee's, of Hammersmith, which looked conspicuously gay in Roses, &c., to the Regent Circus; thence in another "'bus" for St. John's Wood, to Henderson's, to inspect their Calceolarias under cover—a fine sight truly. I see they intend to get them as round as the Great Globe itself before they are considered to be perfect. Walked through most of the "houses," saw almost everything, which is saying a great deal, including their new and beautiful *Clianthus Dampieri*. The walk next to the Wellington Road was being planted with the *Spergula pilifera*, so we shall know, ere long, how it answers for that purpose. Called on the old lady of Threadneedle Street, and found her in robust health. She treated me with the wherewithal to procure a fish dinner at Billingsgate and so home.

Thanks to the "writers" who never seem to sleep, and who are continually urging us on, my whole days are so occupied that I have not much spare time to scrutinise my neighbours, though, from what I can learn, their Potatoes are sadly diseased; and this, coupled with the loss of their last winter's stuff, is more than what their fruit crops will do to make them feel contented. Strange to say, they will not adopt my Potato system of culture. I have for years persuaded them to do so and annually placed my crop before their eyes to appeal to their senses. But no: and although The Cottage Gardener containing my last article about the plan was stolen from the reading-room table, I cannot find as yet that the least impression is made. My enthusiasm once even led me to deliver a lecture in our Town Hall on the cultivation of the Potato, the "audience" receipts to go for the benefit of the Mechanics' Institute, which was then almost a forlorn hope. The receipts, however, barely sufficed to pay for the lighting. I was told afterwards, the expressed opinion was, that they "knew how to eat the Potato, and that was sufficient for them!" Well, I grant you we can do that also; and if any one would make it worth while, I would guarantee the Potato crop in this garden to become annually destroyed by the disease—otherwise, so far as we are concerned, it would be a decided loss; for letting alone the palatable part of the affair, I always consider the profit accrueing to be sufficient of itself to pay for all the occasional labour of the garden. At Stonesfield, an adjoining parish, where I was lately, the Potato crop looked well and promising. E. Robinson, Esq., a famous amateur gardener, found me out a few years ago through the medium of The Cottage Gardener, and periodical visits to see what is going on naturally followed. On his last visit he invited me over to his father's, who was about giving his annual fête at Stonesfield Rectory to his parishioners; so the rector and myself arrived there accordingly, and spent a very happy afternoon. The flower garden there is arranged up to the latest fashion of the day, and, considering the season, the beds were well covered, and blooming as well as any that had come under my view, which all the people of the parish, and many more besides, helped still further to enliven. The grounds, kitchen garden, and houses, were all thrown open, and the astonishment of the poorer sort continually venting itself in the word "beautiful." Who shall calculate its good influence? And hark! how well the village bells discourse their "triple-bob-major." I could, for one, lovingly appreciate that sound, as I was born within earshot of two of the finest peals of bells in old England,—those of Bury St. Edmund's. For this occasion, and in order to form a peal of six bells for the Stonesfield tower, Mr. E. Robinson presented one new bell, had another recast, and renewed the belfry at his own expense, and was then lustily pulling a rope, himself being one of the chief ringers. He came and welcomed me on the lawn; and when, after talking over sundry gardening matters, and giving our united opinions upon the excellent, practical, and sound moral papers now publishing in The Cottage Gardener on the "Science of Gardening," I expressed a hope that he would send the Editors some drawings descriptive of new horticultural structures he has lately set up, which can be packed up and carried off any day without the fear of a landlord before one's eyes. I was as delighted with them as I should be to see them represented in these pages with Mr. Robinson's *fecit*. So, in anticipation, I will merely notice a range of sixty feet, divided into three compartments. The first compartment devoted to bringing things on; the second compartment

chiefly devoted to Grapes in pots, some ripening off their fruit, and many new sorts in training for the future. In the third, or conservatory department, where the word "beautiful" so much preponderated, were Fuchsias, Marantas, Dracænas, Achimenes, Hibbertias, Begonias, Liliums, Ferns, &c., in blooming health, standing on stages on Stonesfield stone broken small, than which nothing in the world could answer better for the purpose. The structure was shaded with Shaw's tiffany; and being one of the finest days we have had this year, I saw that that also for the purpose was very good. In the kitchen garden, close by the orchard-house which we know of, is erected a small early-forcing structure. I have set my heart upon it—viz., one like it. I think Mr. R. intends to transfer his Peaches from their pots into borders in the orchard-house.

The paraphernalia of culinary crops were good. The fruit trees are young and promising, excepting the Peaches. Currants and Rasps abundant. Gooseberries so so. *Keens' Seedling*, *Kitley's Goliath*, *British Queen*, and *Sir Harry* are the Strawberries grown; and the produce have been most abundant, excepting the *British Queen*, which, Mr. R. told me, was his master. *Sir Harry* he spoke very highly of, and has promised it to me to increase my plantation. I also noticed a good crop of *Black Ischia* Figs against the garden-wall; and then, after witnessing sundry old English games, and listening to the singing of the Rev. Mr. Robinson and family, who, with Mrs. Robinson, vied with each other to make their visitors happy, the happy community broke up to the song of "Rule Britannia" and "God save the Queen."—Upwards and Onwards.

BEDDING GERANIUMS AND THEIR TREATMENT LONG AGO.

It is not to be wondered at, that a plant so popular as the Geranium is in the flower garden should be the subject of various comments amongst the readers and writers of The Cottage Gardener; for it has been steadily advancing in usefulness, I believe, during the greater part of the present century, and the many sections, not to mention varieties, into which it has been divided, and each made subservient to the purposes of the now fastidious flower-gardener, who having a great number of varieties to choose from, rejects many that in times gone by would have been gladly accepted. But there is a popular error abroad, especially amongst young gardeners, that planting Scarlet Geraniums in a mass is a modern method of making these handsome adjuncts to the parterre effective; whereas, I believe, the plan was in use at least fifty years ago. My own acquaintance with it as a bedder commenced in 1829, where, at an out-of-the-way place, far remote from any other garden but itself possessing glass structures, the old Horseshoe Geranium was planted in a circular bed, in a manner which has not been improved on since. This old-fashioned circular bed was surrounded by a sort of wire guard about a foot or more high, and the old plants of Geraniums which had been wintered in a cool vinery were planted in this bed about the first week in June, and they were allowed to ramble and fill the wire basket at their pleasure. How long prior to 1829 this was done at the same place I did not at the time think it worth while inquiring; but the system of planting out and taking up again was at that time about as perfect as it is now. The extent at which it is now done has certainly been multiplied many times over; but the old Horseshoe Geranium was then a useful servant, and, no doubt, is the parent of all our Scarlets, the particular merits of which there is so much difference of opinion upon.

Almost coeval with the old Horseshoe was the old Gold and Silver-edged Geraniums. These, however, were not so plentiful The Gold-edged was, as far as my recollection goes, not unlike the *Golden Chain* of the present day; but I have but a vague recollection of it, and neither of them were much used for out-door work, and both were regarded with less interest than one which made its appearance about that time, bearing the somewhat paradoxical name of the *White Scarlet Geranium*. Certainly this Geranium was white, with the foliage of the ordinary Scarlet tribe. Its flowers, however, were never favourites, and it fell into disrepute, especially as some of the greenhouse class seemed better adapted for out-door display. One of the first of these that I was acquainted with was *Moor's Victory*: this was about 1830, and as a Scarlet of the class from which I think some of our *Uniques* must have sprung, it has not been excelled much yet in colour. *Davyanum*, as a purple, followed soon after, and the section now called "French," had a tolerable good representative in *Yeatmanianum*, which flourished about 1834. Some years afterwards followed *Dennis's Rival*, which was the first of the small-leaved section since called Fancies.

I do not mention the above dates as the original period when the kinds just mentioned first made their appearance, but only to say that they were known in a very remote part of the country at that time, and we all know that neither the modes of transit, nor the means of rapid propagation were as perfect then as they are now. Nevertheless, some time about 1832, *Moor's Victory* was bedded out in a mass, and some years before that a white variety called *Macrantha* was also used in a similar way; but the same fault was found then as now—a great abundance of leaves and few flowers. So that the greenhouse varieties of Geraniums, or Pelargoniums as they are sometimes called, have never been popular flower-garden bedders, though the Fancies do pretty well where they can be had in sufficient abundance for the purpose.

It is not my purpose to offer any remarks on the genealogy of the various breeds of Geraniums now in use, my object is simply to point out to the young gardener the kinds his fore-elders had to deal with, and the manner in which they did so; and having said that the first bed of Scarlets I ever knew planted out were treated precisely as some of the best-managed ones are done now, the question to be asked is,—In what manner have we advanced? Some will be saying in our propagation, and in the improvement that has taken place in the kinds used. To a certain extent this is certainly true. In the many new varieties a very great advance has taken place; but the propagation of Scarlet Geraniums in 1830 was precisely the same as in 1860—*i. e.*, in the full sun and out of doors. I remember perfectly well an old Scarlet Geranium that occupied a large space of the back wall of a greenhouse, and, of course, flowered abundantly; but some time early in the summer it had to be trimmed in, and the long, rampant shoots were cut into lengths, and planted as cuttings on the top of a compost-heap in the back ground of the garden, and they rooted freely; and being put in much earlier than we are accustomed to put in our main supply now, they sooner became good plants, and were each afforded a pot. How many years prior to 1830 this old plant had been subject to the treatment here given I cannot say; but I do not think the plan was considered new at that time, otherwise the system of mysteriousness which, it is but justice to say, clogged many of the departments of our craft at that time, would have cast a cloak around this as well. But it is sufficient to say that striking Scarlet Geraniums in the full sun was practised thirty years ago, and how long before that time I leave for older men to determine.

Following the Scarlet Geranium in its course from 1830 to 1840. One of the most popular varieties in its class was called *Brighton Hero*; and I think this kept a respectable position until, some time about 1838, a globular scarlet kind called *Sol* became the favourite of the day. This, however, gave way to that excellent dwarf variety *Frogmore Scarlet*, which followed very soon after, and was very generally used about 1840. Coeval with the *Frogmore* was the *Huntsman*, equally good as a Scarlet, but the leaves more opaque. These two kinds made, I think, as good a bed as is to be seen now. In fact, the best *Frogmore* I ever knew seemed to me identically the same as *Tom Thumb*, of which much stir was made in 1845 and subsequently, and which has deservedly remained a favourite ever since. But at the time of its introduction the plants I became possessed of differed so little, if at all, from the *Frogmore* I had at the time, I was under the impression they were one and the same thing. Subsequently, however, the *Frogmore* was lost sight of, and *Tom Thumbs* became the fashion; and though many other Scarlets have been added to the list, none are at the present day so extensively grown and admired. I might, however, add that about the same time as *Tom Thumb* came into use, a large variety called *Smith's Emperor* was also added to our lists. From this has sprung others of the like character: one I have in use now, *Mrs. Mayler*, not so large as the *Emperor*, but being a more abundant bloomer, is very useful as a centre plant. The Pink-flowered section, commencing with *Lucia rosea*, also came into use about 1846 or 1847; and a year or two afterwards the Rose-coloured section, represented by *Judy* and others, followed. And the subsequent varieties which followed these being legion, and all coming within modern times, it is needless here continuing the list any farther.

It is hardly fair to close this paper without noticing the Variegated varieties. Unfortunately, however, my knowledge of these is limited. Thirty years ago there were, so far as I can

recollect, only the Gold and Silver-edged, and these were kept in pots, and were favourite window plants with those that had the good fortune to get them; but they were not more thought of a little before that time than the Crimson China Rose, which had not been long introduced then. The Variegated section did not receive any particular accession of strength until 1845, or thereabouts, when *Mangles' Variegated* appeared; and this excellent variety is second to none yet for general effect, and I wish more attention was paid to the free-growing, prostrate habits, of which this kind is so good a representative. Prior to *Mangles'* there was a naked, indifferent-flowering kind, of upright growth, that was sometimes used as a bedder, but it had no great merit. And the introduction of *Flower of the Day* in 1850 has been followed by that of several other kinds more or less improved. And to say how far this improvement may be carried is a difficult matter; certainly the wants of planters are yet far from being satisfied, many points being yet imperfect in our best and most popular varieties, and the nearer approach to perfection will of course be more difficult than mediocrity. It is to be feared that it will be some time yet ere we have a *Golden Chain* of the habit of *Mangles'*; and the flowers of *Golden Chain* itself are far from being favourites with the lovers of such things. Some considerable advance must also be made in the way of improving the Oak-leaved variety ere they become so useful as they deserve; and the Ivy-leaved class are open to much advance. Perhaps some one some of these days will be announcing a kind with entirely white or yellow leaves; and if so, the fewer flowers they have the better.

But I must leave this subject to other hands; and if, in my historical notice of the Geranium, I have omitted to mention varieties of deserving repute upwards of twenty years ago, I have a good apology in not being supposed to have known them all; besides which, the naming may be at fault, for the common passing events of the day are not always thought of thirty years afterwards. My purpose has been to show the young gardener that bedding out Scarlet Geraniums is not so modern an invention as he may have supposed; and at another time I may, perhaps, narrate how other features in gardening were performed long ago. —John Robson.

THE SCIENCE OF GARDENING.

(*Continued from page* 355.)

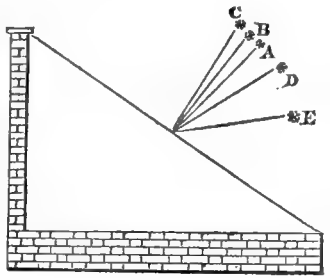
Solar light is essential to the ripening of all fruit; it will not ripen in the dark, and the greater the light's intensity and the longer its daily endurance, the sweeter and the higher is the fruit's flavour. No fruits are so luscious as those grown within the tropics, and the fruits of the temperate zone are excellent in proportion to the brightness of its seasons.

That light is essential in causing the colour of the leaves and other parts of plants has been noticed already; and it aids the ripening process of fruits. In a similar manner, to convert their acid and mucilaginous constituents into sugar, much carbon and hydrogen have to be got rid of, and this is effected, if light be admitted, by the evolution of carbonic acid and watery vapour. How much light promotes the ripening of fruit is well known to all who deal in it. They keep their dessert Pears, which ripen after gathering, in drawers and other dark storing-places. Flavour, however, is promoted by light and warmth; and fruit from the store-room has its flavour intensified by exposure to them for a week before being placed among the dessert.

How light operates in promoting this and other decompositions which are effected by the vegetable organs is at present a mystery, but so it is; and the gardener promotes its access as much as lies within his power by removing overshadowing leaves, by employing the best glass in his forcing-houses, and by having their interior whitened, for white surfaces reflect all the rays of light back upon the objects those surfaces enclose.

The angle formed by the glass roof of the hot-house is of very considerable importance, because rays of light are reflected in proportion to the obliquity with which they fall upon any given surface; those which fall upon it perpendicularly from the source of light pass through with very slight diminution, but those falling upon it in a slanting or oblique direction pass into the house reduced in number in proportion to the obliquity of that direction. To ascertain how a glass roof may be constructed so as to receive the greatest number of rays of light from the sun perpendicularly or near to perpendicularity at any given time of the year, it is necessary to know the latitude of the place where the hothouse is erected, and the sun's declination at the period when most light is required. The latter information may be obtained from most almanacs, and if it be subtracted from the latitude, the remainder will be the angle desired.

If London be the place, and May the 6th the time about when the most light is desired, the latitude being 51° 31′ and the sun's declension then 16° 36′ north, therefore the roof ought to slope at an angle of 34° 55′.



In latitude 52° Mr. Knight found, from lengthened experiment, that the best angle is about 34°, considering the services of a hothouse through the year; and to illustrate this, he gave the annexed diagram.

About the middle of May the elevation of the sun at noon corresponds nearly with the asterisk A; in the beginning of June and early in July it will be vertical at B, and at midsummer at C, only six degrees from being vertical. The asterisk D points out its position at the equinoxes, and E its position at midwinter.—(*Hort. Society's Transactions.*)

If the best glass be employed it is an excellent plan to have it put double in each sash, an interval of half an inch being left between the two panes, and a small hole at the corner of the inner one to prevent the glass being broken by the expansion or contraction of the air between. This confined air is one of the worst possible conductors of heat, keeping the house from being rapidly cooled during the coldest weather; and thus is effected a very great economy of fuel, whilst little or no extra interruption is caused to the entrance of light.

Moisture.—Every fruit-bearing tree requires a larger supply of moisture during the growth of its fruit, and in proportion to its abundance, than at any other season; and for the obvious reason that, as the fruit is a reservoir of accumulated and elaborated sap, that sap requires for its formation an extra supply of moisture, inasmuch as that its chief ingredient is water.

Though abundance is required it must not be excessive; for if this does occur, the sap poured into the fruit is so abundant that it cannot elaborate it sufficiently fast, and, instead of exhaling the superfluous moisture, its cells enlarge, and the fruit greatly increases in size, but at the expense of its flavour. In very wet seasons the supply of moisture is so great that the cells of the parenchymous or fleshy part of the fruit swell faster than its epidermis can expand, and this consequently bursts. This is continually occurring to the Plum and Cherry. When this happens to the Green Gage, and its extremely saccharine juice is exposed to the air, vinous fermentation speedily takes place, and an appreciable quantity of spirit of wine (alcohol) is formed—a discovery to which we were led by observing, what every gardener must have observed, that wasps, after feeding plentifully upon the juice that has been thus exposed, usually fall to the ground stupified and inebriated.

Fruit has also the power of imbibing water through the pores of its epidermis, a power taken advantage of by those Gooseberry growers who aim at size rather than flavour. They keep the calyx end of the berry dipped in a saucer of water.

Fruit for storing should be gathered before it is quite mature, for the ripening process—the formation of sugar, with its attendant exhalation of carbonic acid and water—goes on as well in the fruit-room as in the open air, at the season when the functions of the leaves have ceased, and the fruit no longer enlarges. In gathering fruit every care should be adopted to avoid bruising; and to this end, in the case of Apples, Pears, Quinces, and Medlars, let the gathering-basket be lined throughout with sacking, and let the contents of each basket be carried at once to a floor covered with sand, and taken out one by one—not poured out, as is too usual, into a larger basket, and then again from this into a heap; for, this systematic mode of inflicting small bruises is sure to usher in decay, inasmuch as that it bursts the divisional membranes of the cells containing the juice, and this being extravasated speedily passes from the stage of spirituous fermentation to that of putrefaction. To avoid this is the principal object of fruit storing, whilst, at the same time, it is necessary that the fruit shall be kept firm and juicy.

Now it so happens that the means required to secure the one also effects the other. To preserve the juiciness of the fruit, nothing more is required than a low temperature and the exclusion

of the atmospheric air. The best practical mode of doing this is to pack the fruit in boxes of perfectly dried pit-sand, employing boxes or bins, and taking care that no two Apples or Pears touch. The sand should be thoroughly dried by fire heat, and over the uppermost layer of fruit the sand should form a covering nine inches deep. Sand operates as a preservative, not only by excluding air and moisture, but by keeping the fruit cool, for it is one of the worst conductors of heat, and, moreover, it keeps carbonic acid in contact with the fruit. All fruit in ripening emits carbonic acid, and this gas is one of the most powerful preventives of decay known.

Putrefaction requires indispensably three contingencies—moisture, warmth, and the presence of atmospheric air, or at least of its oxygen. Now burying in sand excludes all these as much as can be practically effected. The more minutely divided into small portions animal or vegetable juices may be, so much longer are they preserved from putridity: hence *one* of the reasons why bruised fruit decays more quickly than sound—the membranes of the pulp dividing it into little cells are ruptured, and a larger quantity of the juices is together; but this is only one reason, for bruising allows the air to penetrate, and it deranges that inexplicable vital power which, whilst uninjured, acts so antiseptically in all fruits, seeds, and eggs. Bruises the most slight, therefore, are to be avoided; and instead of putting fruit in heaps to *sweat*, as it is ignorantly termed, but in fact *to heat*, and promote decay, fruit should be placed one by one upon a floor covered with dry sand, and the day following, if the air be dry, stored away as before directed. Fruit for storing should not only be gathered during the mid-day hours of a dry day, but after the occurrence of several such.

Although the fruit is stored in sand, it is not best for it to be kept there up to the very time of using, for the presence of light, warmth, and air are necessary for the elaboration of saccharine matter. A fortnight's consumption of each sort should be kept upon Beech, Birch, or Elm shelves, with a ledge all round to keep on them about half an inch in depth of dry sand. On this the fruit rests softly, and the vacancy caused by every day's consumption should be replaced from the boxes as it occurs. If deal is employed for the shelving, it is apt to impart a flavour of turpentine to the fruit.

The store-room should have a northern aspect, be on a second floor, and have at least two windows to promote ventilation in dry days. A stove in the room, or hot-water pipe with a regulating-cock, is almost essential, for heat will be required occasionally in very cold and in damp weather. The windows should have stout inside shutters.

The temperature of the fruit-room should never rise above 40°, nor sink below 34° of Fahrenheit's thermometer; the more regular the temperature the better. Powdered charcoal is even a better preservative for packing fruit than sand, and one box not to be opened until April, ought to be packed with this most powerful antiseptic. If it were not from its soiling nature, and the trouble consequent upon its employment, we should advocate its exclusive use. We have kept Apples not usually good-keeping, perfectly sound in it until June.

It is not unworthy of observation, that the eye, or extremity furthest from the stalk, is invariably the first to ripen. This is most perceptible in Pears, especially in the *Chaumontelle*. That end, therefore, should be slightly embedded in the sand, as thus excluding it from the light checks its progress in ripening.

The perfecting of seed is a process very similar to the maturation of fruit—indeed, for the most part, whatever advances the one promotes the other. The chief difference is, that if seed be the exclusive object, less moisture and rich food should be supplied to the plants, inasmuch as that an abundant supply of these increases excessively the development of the succulent part of the fruit, and yet the vessels from this to the seed often wither and render it abortive. A similar defective fertility occurs if the female parent in animals is over-stimulated and fat.—J.

(*To be continued.*)

WHAT TO LOOK FOR ON THE SEASHORE.

(*Continued from page* 357.)

Echinodermata (*Continued*).

We now proceed to examine more closely the particular divisions of this curious class, and the first we have to notice is the

Crinoidea or Encrinites.

With these creatures at an earlier period of the world our seas must have teemed. This may be proved by the profusion of their remains in a fossil state, vast strata of marble in the northern part of both hemispheres being entirely formed of their skeletons known as "Lily Stones." For miles and miles you may walk over their fossilised remains, and these not only form occasional layers, but the entire mass is built up of them as completely, in the words of Professor Buckland, "as a corn-rick is of straws;" stems and a crown of rays bending in peculiar curves resembling the stalk and bell-shaped blossom of a flower similar to a Lily. In the same districts where these abound may be found on the beach small perforated stony beads, rounded and polished by the action of the waves, and vulgarly known as "St. Cuthbert's Beads." These are only the joints which once formed the stem of the Encrinite, which is itself the skeleton of an ancient Star Fish.

These are, however, now as rare as they were once common. A fine specimen was some time since dredged up in the Caribbean Sea, in the West Indies; and from the stem having been violently torn in two, and the base left behind, it is conjectured that the creature was immoveably fixed to the rock like a seaweed. This is the only recent living specimen of any size which has been seen, although a minute kind was at one time supposed to inhabit our own seas, measuring about three-quarters of an inch in length, and was described as "having five pairs of beautifully pinnated arms, and of a deep rose colour, dotted over with brown spots, which are regarded as ovaries. It has been dredged up in some parts of the Irish Sea, and is occasionally found on the strand. It is said also to emit a fluid which imparts a roseate tinge to the water." This supposed Encrinite, however, turned out to be only the youthful condition of a common-enough Echinoderm, the *Comatula* or *Rosy Feather Star*, so called from its colour, and its feathery rays arranged, as usual, in five pairs.

The Rosy Feather Star (*Comatula rosacea*).

This creature is the only one of the group which bears any analogy to the fossil Star Fishes, and is for this reason assigned

to the class called Crinoideæ or Encrinites (Sea Lilies). It has been found on many parts of the British coast. It is uniformly of a deep rose colour, dotted over with brown spots, which are the ovaries, and is fringed with transparent cirrhi. It consists of a cup-shaped calcareous base, in the concavity of which is placed a soft body, and on the convexity a number of slender-jointed simple arms. The base branches out into five arms, which are bi-furcated, so that the animal appears to be ten-armed. The two branches on each arm being very long, and the part below the bi-furcation extremely short. These arms are pinnated or feathered with single pinnæ, each of which possesses a membranous expansion.

The Rosy Feather Star is found both in deep and shallow water. When fully grown, however, it chiefly frequents the former. The adult animals are free, but when young they are attached to a stalk; but in spite of the attachment they display

a vast deal of activity. If a Feather Star is plunged into a vessel of cold fresh water, it will contract and die; but if not killed in this way, or destroyed by means of spirits, it breaks itself to pieces. When dying it gives out a brilliant purple colour, which imparts a tinge to the water or spirit in which its death takes place. The spirit especially will retain the colour for a considerable time.

Ophiuridæ.

This is a large class of Echinodermata, so called from the long serpent-like rays which are attached to their round-depressed bodies. These rays, or arms, are five in number, and are flexible jointed processes placed at irregular distances round the body, the sides being furnished with spines and membranous tentacles: hence this class is denominated Spinigrade—being destitute of the sucking disc by which motion is effected by other groups, and in their stead depending on their rays for the means of transit. These rays, however, it must be remarked, are very different from those of the true Star Fishes (which are integral parts of the animals' organisation). The arms of the Ophiuridæ, on the other hand, are superadded to the body, and have no excavation in them for any continuation of the digestive organs. The stomach is a sac with only one aperture, and covered externally with vibratile cilia.

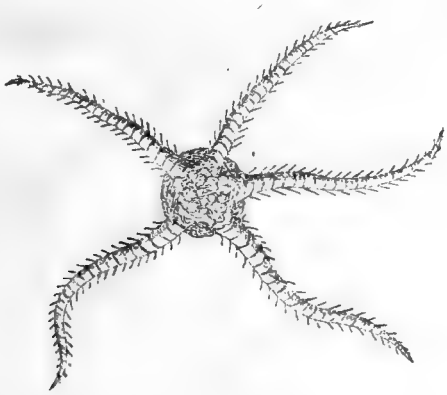
Ophiuridæ are generally distributed throughout all seas, and appear to be materially affected by climate, which seems to influence their size, they being largest in the tropical seas. In the British waters they are very abundant, and afford the dredger much matter of interest from their curious and beautiful varieties. They are always regularly radiate, and seldom vary in the number of their parts—with them the number "five" is invariable.

Common Sand Star (*Ophiura texturata*).

This creature has a very flat, rough, or scaly disc, surrounded by five simple arms bearing very short spines. In the largest specimens this disc rarely exceeds nine-tenths of an inch in breadth; and the rays are about three times the length of the disc's breadth, or less than that, although they will sometimes attain a larger size. The disc is usually of a reddish colour, variegated with a purple brown; the sides white; and the under surface, as well as the spines, either white or pale yellow. This animal may be met with in most parts of the British coast; and is supposed, although erroneously, to be the cause of the injurious effect sometimes experienced on eating Mussels, which at certain periods of the year feed upon it.

Lesser Sand Star (*Ophiura albida*).

This is a commoner species, and is very similar to the common Sand Star; differing from it, however, as being thicker and



smaller in proportion to its arms. When alive, the disc of this animal is usually pink, with ten white spots on it; the centre of the arms is also pink; the under surface and the spines white; the cirrhi and tentacles are tipped with yellow; sometimes the spots on the disc are of an orange colour. The Lesser Sand Star may be found on all our coasts, chiefly frequenting Oyster-beds and sandy places. It is very common in Dublin Bay, and also on the western coast of Ireland. "When one of these creatures," says Professor Forbes, "is put into a vessel of salt water, it will remain quiet for some time, and then slowly move its arms up and down. Should it be placed on its back, that position appears to be very disagreeable to it; for it immediately proceeds to change it by raising its body to a perpendicular and tumbling over. This it effects by bending two or three of its rays into an arch, leaving the others straight and spread out."

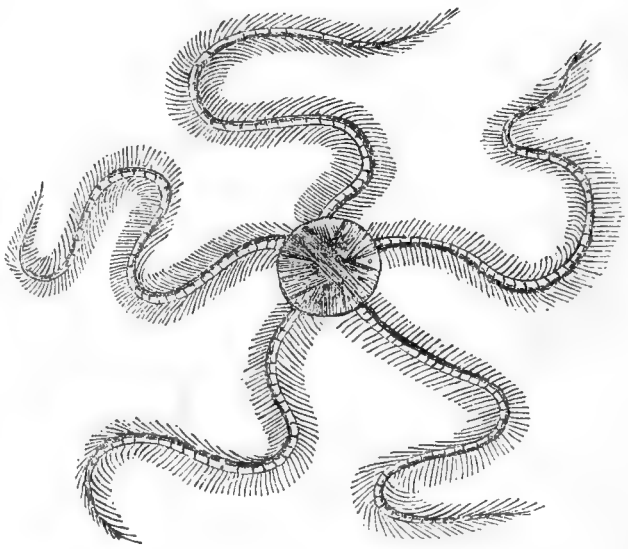
The Grey Brittle Star (*Ophiocoma neglecta*)

Is another of the species of the Ophiuridæ. This creature may be recognised by the whip-like or lizard-tail appearance of its rays, and by its restless activity. It seldom remains quiet for a single minute, but is perpetually twisting its rays about, and if taken hold of will break itself into pieces with extraordinary readiness and dispatch—the broken pieces also carrying on the work of self-destruction by breaking into smaller fragments; so that, if the tourist takes up one of them in a perfect state, he is very likely to find in a moment's time nothing left in his hand but the simple disc. This suicidal tendency renders the task of preserving them entire for collections a matter of considerable difficulty. One mode suggested to accomplish this object is to bring them ashore in salt water, where, after a short time, they will begin to crawl about and expand themselves. In this state they must be removed very cautiously by hand, and plunged instantly into a vessel of cold fresh water—whereupon they die in a state of the most rigid expansion, and so quickly that the most brittle of the species have no time to accomplish the work of dismemberment. Leave them in the fresh water for four and twenty hours. Then display them on white paper, and dry them very slowly before the fire: this is the plan adopted by Dr. Johnstone. Professor Forbes suggests another mode, which he recommends as saving time and being more convenient to the collector. He directs you to drop the Sand or Brittle Star as soon as possible into fresh water; let it lie therein for an hour or two; then *dip it* for a moment in boiling water. It is afterwards to be dried in the sun or in a current of air, which will be effected in a very short time, and then packed in paper. "By this simple process," adds the Professor, "as many specimens as the collector pleases may be dried and put away in a couple of hours." The fresh water, it appears, acts as a poison on the Ophiuræ as well as on other marine animals—killing them instantaneously. The body of the Grey Brittle Star is rarely more than two-tenths of an inch in breadth, more often less; it is flat and circular, covered on the upper surface with small smooth scales. The rays, which are generally a little more than three times as long as the disc is broad, are covered above with scales nearly square, and beneath with oblong longitudinal plates. The colour both of body and arms is grey. This animal is common to all our seas.

By far the commonest and best known of these creatures, however, is

The Common Brittle Star (*Ophiocoma rosula*).

It is, undoubtedly, one of the most beautiful, its resplendent colours displayed in every variety of pattern giving it this pre-



eminence. It is very variable in its formation also; the spines on the arms of some specimens being much longer than those of others. It differs also in the relative proportions of its body and arms, and in the spinousness of its disc. It is, moreover, found of a much larger size in some places than in others. The body is round and convex, usually covered with long spines, with the exception of certain triangular plates placed opposite the insertions of the arms. These are separated from each other by rows of spines. You rarely find two specimens coloured alike,

one may be of a dusky rose colour with grey scales, another white spotted with red, a third marked with a star of red or yellow, whilst a fourth may be almost black. The rays or arms are usually white or grey with bright pink bands, often of a deep blue with spines of rose colour, or banded with gold, or speckled with brown or orange. This is the most brittle of all the Brittle Stars, separating itself into pieces on the slightest touch, flinging away its arms and reducing itself to the plain disc in an incredibly short time.

The Common Brittle Star seems to be equally abundant on all parts of the coasts of Britain and Ireland, frequenting Oyster and other shell-banks in considerable quantities. They are, in many places, particularly on the western coast of Scotland, and in some parts of the east of England, found upon the shore at low water. It is to be looked for in rocky places; rarely frequenting sandy localities. It is said to attain a larger size off the Shetland Isles than anywhere else. Its prey consists mostly of little Crabs and other shell fish, and seems itself to be a favourite food of the Cod, great numbers having been found in the stomach of that fish.—W. (*To be continued.*)

TRITOMA UVARIA OFFSETS.

Having a few plants of *Tritoma uvaria*, they have each sent up three or four young shoots from the roots. I suspect these plants are not hardy enough to remain out in the open border, and will require to be lifted, and potted, and placed under protection before winter. Should I take away the young shoots, or allow them to remain attached to the old plant?—J. M.

[We cannot say if *Tritoma uvaria* is hardy enough for your garden, as you do not say what part of the world you live in. It is hardy enough on sandy soil that is not liable to be flooded about London, Edinburgh, and Dublin. Last winter destroyed numbers of it at Kew, where the ground was flooded when the frost came; but in the cottage gardens about Kew Green, and from there to Richmond, we have seen it in fine bloom lately, and could hear of none having suffered by frost. Unless your plants have been down three or four years we would not attempt to separate the suckers. The end of February is the best time for amateurs to divide it. As a Russian frost could be kept from a few square yards of ground, we would never remove such plants as this Tritoma for protection in-doors. Such plants are more liable to harm under the stage of ordinary greenhouses than in the open ground with some coal ashes over them all the winter, and something extra over that during severe weather—that is, where they are liable to be caught in the frost. Ours never need covering, and we grow many of them.]

TOWCESTER HORTICULTURAL FETE.

What a drab-coloured world this would be if the dismal-minded folk had it all their own way! If a picture has two sides, a bright and a dark, the dark is studiously kept before you. The sun may shine, it is true; but if you cannot see dark lowering clouds, you are told prophetically that they are sure to come. All the beauties of creation, and the benevolence these reveal, are to them shrouded in mourning and woe. It is not enough to meet evil and disaster half way—they woo and court their advances. They receive not in the matters of their creed "Sufficient for the day is the evil thereof." They lengthen their long faces at the enunciation of the good old proverb, "Sad, sad is the heart that never rejoices."

So think not and act not the good people of the little town of Towcester, situated some five miles from the station of Blisworth on the North-western Railway. In the days of coaches the town presented a scene of busy active excitement. The rail and the train took traffic in other directions; and the town, like many another town and private establishment, was left to feel that few great public advantages can be realised without entailing some loss on individuals and lesser communities. Did the Towcester folk content themselves with wringing their hands in unavailing regrets, allow their houses to moulder and decay, and turn their once-busy streets into sheep-walks and cow-pastures? Not they. They believed that good Fortune had many stores left to bestow on the bravely active and the industriously energetic. By various means they let the world know there was still a Towcester; and among the last, though not the least of these means, has been the establishment of a floral and horticultural fête, that from the first has taken no secondary place among provincial exhibitions, and chiefly owing to the fact that a united township had resolved it should be a success.

The first of these fêtes was held two years ago, contemporaneously with the meeting of the Northamptonshire Agricultural Association at Towcester; and after a night and morning of drenching rains, the sun shone brilliantly for most of the day, and the large meadow, given for the occasion by Mr. T. W. Gurney, scarcely allowed moving room for the mass of visitors. Last year the Show was even better than the first, and the last on the 30th of August best of all. Never was there a better example in our changeable climate of "work, and then expect." St. Swithin, unsatisfied with his six weeks' copious tear-shedding, gave us several extra days of regular downpouring; and many a gardener and amateur got regularly soaked on the morning of the 30th, in preparing and taking his favourite produce to the great rendezvous. All was forgotten when the sun shone out brilliantly before mid-day, the harbinger of the fine harvest weather that has succeeded. His cheering presence gave a richer zest to the flags and floral wreaths with which the town was decorated, made the two smart corps of volunteers that came from Northampton to greet in social brotherhood the equally smart corps under Lord Pomfret look all the smarter and prettier, caused the splendid music of the full band of marines to sound more mellow and enchanting, and lightened up with joyous smiles the countenances of from four to five thousand visitors, embracing all ranks from peer to peasant—from Lord and Lady Southampton, Lord Pomfret, Sir Charles and Lady Wake, and the aristocracy of the district, to the tradesmen of the town, and the lads and lasses from the villages and farmhouses in the neighbourhood. In this mixture of rank, composing such a scene of general joyousness, there was something more pleasing than even Chiswick presented in its palmy days. There was *there*, at least, the attempted cordon of exclusiveness. It was even mooted at one time, that the gardeners whose skill made the exhibitions should not be admitted until a late hour in the afternoon. It is true, at Towcester there were different hours and different prices for admission; but if the aristocracy were the earliest to enter, they were anything but the earliest to depart—mingling with affability and courtesy among their humbler neighbours, furnishing indubitable proof that such condescension never lowers but raises in rank and esteem, whilst its manifestation seldom fails to produce a deeper feeling of self-respect and moral dignity amongst us working men who are privileged to witness it.

It would be impossible for me, and *somewhat* contrary to our general practice in this serial, to give a detailed account of the almost countless objects of superior culture, and good management, and proofs of industry, and anxious care, that loaded the tables of some half dozen large tents belonging to the division open to all comers; to the divisions for gardeners, amateurs, cottagers, under-gardeners, agriculturalists, and, though last not least, the division set apart for the designs and collections of wild flowers by boys and girls belonging to Sunday-schools. I will merely cull a few of the most salient points that are likely to be most generally interesting.

One of the most telling features of the Exhibition was the various collections of eight stove, greenhouse, or ornamental-foliage plants in the open division. The lead here was most deservedly taken by Mr. Mills, gardener to H. G. Nethercote, Esq., of Moreton Grange, near Northampton. His plants were a fine specimen of *Caladium argyrites*, some eighteen inches high, and about as much in diameter; the foliage beautifully healthy, and pearled in profusion with its peculiar white blotches. A fine plant of *Caladium Newmanii*, its large green leaves speckled and dotted with spots of crimson. A huge mass of *Caladium Chantinii*, rivetting with its beauty every spectator; the leaves not long and narrow like Cauliflower, but rounded like Rhubarb, and measuring fully one foot across. *Pothos argyrea*, with thick leaves like a Hoya, the green blotched with white; more singular than beautiful. A huge mass of *Begonia grandis* fully two feet in height, and more in diameter; foliage healthy without a single leaf showing a wrinkle or a curl. *Begonia Marshallii*, not quite so high, but wider across, and beautifully done. A nice plant of *Chamærops humilis*, and a compact plant of the ever-admired *Cyanophyllum magnificum*. Equal seconds were awarded to Messrs. Wood & Ingram, of Huntingdon, and Mr. Blackmore, gardener to R. G. Bevan, Esq., of Brickworth. In the collection of the first-named gentleman were splendid plants of *Caladium pictum* and *Chantinii*; and in Mr. Blackmore's were fine plants of *Begonia Marshallii* and *Statice im-*

bricata, and a huge mass of the Chinese Coltsfoot, *Farfugium grande*, and smaller plants of the *Begonia argentea* of Loudon, and the pretty mottled and spotted Pavetta. Mr. Blackmore also took the running in Lycopods and Ferns; among which were large plants of *Microlepis polypodoides*, *Adiantum formosum*, *Phlebodium aureum*, *Gymnogramma Martensii*, *Nephrolepis exaltata*, *Gonophlebium saliculatum*, with weeping hanging fronds six feet in length; neat plants of *Darea diversifolia*, *Asplenium præmorsum*, *Platycerium alcicorne*, *Adiantum cuneatum*, and the slender weeping *Asplenium flaccidum*.

Of Asters, a great quantity were exhibited in all the divisions; but though many were fine, they failed, owing to the wet weather, to reach the same excellence as they generally did last season. Hollyhocks were shown in excellent condition in spikes, as they only ought to be shown, by Messrs. Wood & Ingram, followed by Mr. J. Perkins, of Northampton. The latter gentleman also exhibited a fine collection of twenty-four varieties of Verbenas, taking all the honours. The flowers were in excellent condition —speaking almost, by their appearance of glass covering, and some of them, perhaps, rather large in bloom for general bedding purposes in such seasons as the present. I mention some of the best for the benefit of our readers who may not have seen them. *Felix Roland*, a pretty rosy pink; *Adonis*, lilac, with pink eye; *Lord Elgin*, very dark, with white eye; *Saturn*, dark crimson; *Kemo Kimo*, pink blotched, and with crimson centre; *Ariosto*, well-known puce; *La Trovatore*, crimson red, and fine white eye; *Crimson Perfection*, fine large white eye; *Stradella*, light purple, with large white eye; *Kenilworth*, red-crimson, with white centre; *Inimitable*, fine rich purple; *Conspicua*, red, with white centre; *Mrs. Judd*, a large fine pink, with creamy-yellowish centre; *Ajax*, a dull red or scarlet; *Lady Collin Shepherd*, splendid crimson, with large white centre; and *Pretty Polly*, hardly worthy of such a poetical name.

In addition to the Roses exhibited in the gardeners' division by Messrs. Thorneycroft, Stevens, and Gardener, fine collections were shown by Messrs. Lane and Mr. Kemberley, Stoke Nursery, Coventry. In the first gentleman's collection were superb specimens of *Souvenir de la Reine d'Angleterre*, *Nephetos*, *Général Jacqueminot*, *Louis Peronny*, *Narcisse*, *Prince Imperial*, *Malmaison*, *Devoniensis*, *Gloire de Dijon*, *Comte de Nanteuil*, *Lord Raglan*, &c.; and large separate boxes of the beautiful dark crimson *Lord Raglan*, *Général Jacqueminot*, *Géant des Batailles*, and many other kinds.

Considering the very peculiar season, the Dahlias, perhaps, constituted the greatest triumph of floricultural skill. I know that many as well as myself have found, in the case of the tall kinds, instead of massive banks of bloom as heretofore, the plants even could not be got to grow regularly and healthy. To look at the Dahlias at Towcester, instead of a 30th of August in 1860, we could easily have brought ourselves to believe that we saw them in the middle of September, 1859. Even cottagers turned them out respectably. Of course, amateurs led by Messrs. Cross, Blencowe, Ridge, Treen, and Douglas, were better; and the gardeners were not behind, led by Messrs. Atkins, Thorneycroft, Watts, and Gardener. The chief interest, however, seemed centered in the division open to all comers; and here the flowers exhibited by Mr. Burberry, Messrs. Wood & Ingram, and Mr. Thorneycroft were excellent. The lead in all the divisions, however, was taken by Mr. Kemberley, of Coventry, who was first in thirty-six varieties; first in twenty-four selfs; and first in twenty-four fancies. In the seven dozen flowers thus exhibited by that gentleman, there were few flowers below the standard as respects size, and many were very large. All were fresh, without a decayed petal at their base, without a petal out of place, the centres all well up, and not a single eye visible. The names were written lightly, opposite the rows, in pencil; but the crowds after the opening prevented all possibility of taking them. If Mr. Kemberley were to give a list and colours, even of the thirty-six, and his mode of management this season, as respects soil, time of planting, size of plants, when turned out and future treatment, he would confer an obligation on many lovers of the Dahlia. I happen to know some who have been so unfortunate this season, that, had they been at Towcester, they would have run as much risk of being turned into a Dahlia as the foolish boy who grew into a flower from falling in love with his own face in that true looking-glass, a pool of water.

I must compress my recollections of the collection of six plants exhibited by gardeners, in which Mr. Jones, of Whittlebury, took the lead, followed by Mr. Gardener, of Courlean Hall, and Messrs. Newman, Blackmore, and Wells; the latter gentleman taking the lead with single specimens with a fine plant of the beautiful *Pteris argyrea*, introduced by Mr. Veitch two or three years ago. Among the collections were fine plants of *Begonia maculata*, *argentea splendida*, *Lazuli*; Caladiums of kinds; Clerodendrons; *Cissus discolor* and *Coleus Blumei*—the two latter in fine condition from Mr. Newman, and also from others. Mr. Gardener took the running with single specimens of Fuchsias, with a graceful plant of *Rose of Castille*, having dark purple corolla and light sepals. He also took the lead in collections of Fuchsias, the plants being distinguished not so much for size as massive blooming, and no training or staking perceptible. The six were, *Dr. Lindley*, *Venus de Medici*, *Tristram Shandy*, *Souvenir de Chiswick*, *England's Glory*, and *Solferino*, a magnificent flower with the habit and colour of *Wonderful*, but almost double the size.

In Fruit, perhaps the chief interest was concentrated on the collection of sixes in the open division. Here Mr. Chalmers, gardener to Sir Robert Peel, took the lead with a fine swelled Jamaica Pine, good coloured black Grapes, white Nice ditto, Figs, and good Peaches and Nectarines. Mr. Newman was second with a *Queen* Pine, white *Nice* Grapes, fine *Hamburgh* ditto, a beautiful Melon, and Peaches and Nectarines. Mr. Jones, of Whittlebury, was third with *Reine Muscat* Grapes, black ditto, like *Black Prince* finely coloured, Apricots, Melons, and Green Gage Plums well ripened.

For collections of Fruit Trees in pots, Mr. Lane took the lead, and Messrs. Ingram & Wood followed with smaller neat plants. The trees exhibited by Mr. Lane were chiefly Plums, and on several I counted about sixty fruit, and just so far from being ripe that all the fruit stuck securely. Besides these, the same firm sent from two to three dozen of pots smothered with fruit in small compass, consisting chiefly of Plums, but with a sprinkling of Apples, Pears, and Peaches. Mr. Perry, of Banbury, also sent a large collection of fruit trees in pots, merely for exhibition, which, in addition to Plums, &c., had many fine specimens of Pears, Apples, and Peaches, &c.

In the gardeners' division of fruit, Mr. Newman took the lead with a fine *Jamaica* Pine, followed by Mr. Chalmers with a nice *Trinidad*, and Mr. Jones with a *Queen*. Good *Muscat* Grapes were shown by Mr. Jones, of Whittlebury, and Messrs. Watt and Archer. Fine bunches of White *Frontignan* were shown by Mr. Archer, and other whites by Messrs. Newman, Stevens, and Gardener. Mr. Chalmers took the lead with *Black Hamburghs*; Mr. Jones was second, and Mr. Newman third, with fine specimens, especially of the *Dutch Hamburgh*. In other blacks Mr. Newman was first with fine fruit of *Black Prince*, and Mr. Stevens was second. In Melons, Mr. Watt was first, Mr. Chalmers second, and Mr. Newman third. In collections of sixes, Mr. Newman was first, Mr. Gardener second, and Mr. Gibson third. For four ditto, Mr. Stevens took all the running. It is specified in the schedule that these six dishes should be *hardy fruit*. In one of the collections was a dish of Peaches, that if not much forced bore unmistakeable evidence that they had come from under glass. I accidentally heard a discussion as to whether the Peaches ought to have been there—whether, indeed, their presence did not disqualify the collection. True, the Peach tree is hardy with us in general seasons, though the trees are anything but thriving with us this year; but the idea of specifying *hardy fruits* would seem to imply fruits ripened by the natural climate. All other dishes in the competition seemed so ripened. We should hardly consider a Peach ripened under glass in May and June a hardy fruit. The Strawberry in March and April could hardly be called a hardy fruit then. What say Editors and coadjutors? the matter is important enough for a free ventilation. In the present case I do not believe there was the slightest wish to break the rule.

Upon the wonderful display of vegetables, such a sight as I have never yet seen out of Northamptonshire, and which to the utilitarian constituted the grand feature of the Exhibition, I dare not enter. Gardeners, amateurs, cottagers, and under-gardeners seemed to contend, not merely with each other respectively, but class against class as to the quality of their productions. If a spice of regret or of pity stole over me, it was in consideration of the fate of the Judges forced to try to settle conflicting claims of competitors whose articles were about as much alike as Peas taken from the same pod. There were garden Beans broad and long enough to make rails to sit upon; Scarlet Runners and Dwarf Kidney Beans fresh and crisp enough to suit any *artiste* of the kitchen; Peas beautiful and to suit all palates, *Jeyes' Conqueror* still maintaining the lead for its fine green colour, and rich, sweet,

marrow flavour—its only drawback at all times, and especially this season, being its extreme height, ten feet being nothing uncommon; Cauliflowers small and firm; and large and yet compact Cabbages—everything to be desired; Turnips of every size and shape, but all fresh, clean, and without a spot—a creamy, yellow, somewhat flat one being unknown to me, and might not be useful if we did, unless cooks and consumers can see quality in any colour but white; Potatoes round, without deep-sunk eyes, and *Kidneys* almost as large and flat as shoemakers' lapstones, quite free from aspect of disease, which I hope is the case with the crop in that neighbourhood; Onions clean, and some of immense size, without thick spongy necks, or seemingly any artifice to hide them; Parsnips I cannot say how long; and Carrots short, clean, and dumpy, of the *Horn* breed; and others, so long and clean, might warrant our host at Daventry again to tell a greenhorn who was urgent in his inquiries as to the "how and the why," that old sawpits were filled with light sandy soil, on this the Carrots were sown, and, when wanted, no means could be devised for getting them up their full length but tying the top of each Carrot to a donkey's tail, and starting off the said donkey into a canter.

To Messrs. Lane, as has been already noted; to Messrs. Perry, of Banbury, not only for fruit trees in pots, but for a large collection of useful plants of new bedding Geraniums, Verbenas, and Fuchsias—few of which, however, were named; to Mr. Perkins, of Northampton, for large collections of Roses, Ferns, Begonias, and Conifers, which I cannot find space to name, and for a group of Fuchsias smothered with bloom, and having but one stick in the centre, showing the absurdity of the forest-of-stick system;—to these and others the Society were much indebted for the fine massive display.

All, however, might have been unavailing in promoting the more-than-general satisfaction without the able and indefatigable exertions of Mr. Booth, gardener to Lord Pomfret, at Easton Neston; the unceasing and extra courteous endeavours of Mr. Jephson, and the other members of the Committee; their extra liberality in awarding from £30 to £40 in extra prizes alone; and though last, not least, the kind and hospitable conduct of the townspeople in inviting their country friends to meet them that day. I believe, though every inn was crowded, there were few private houses in which, towards evening, there was not heard the clinking of extra tea-cups in unison with happy human voices. Our heartiest wish is that the next annual fête may, if possible, be attended with even more joyous happiness than the last. R. Fish.

P.S.—There were some fine floral designs and plans of flower gardens planted, but no justice could be done to them without a lengthened description.

[At the particular request of Mr. Fish we have inserted the above, but it must not be taken as a precedent. Our pages are to give information interesting to the public generally. A country show, however good, is interesting only to its immediate neighbours.—Eds.]

HORTICULTURAL SOCIETY.

Fruit Committee.—A meeting of the Fruit Committee was held on the 11th inst. Mr. Edmonds in the chair.

In consequence of the very unfavourable state of the weather and the lateness of the season, there were no competitions for the prizes offered for collections of Peaches and Nectarines. Mr. Ferguson, of Stowe, sent several dishes of well-grown Peaches and Nectarines from under glass, several of which were unnamed.

Mr. Salter, of Hammersmith, sent a dish of a Seedling Peach, which bears considerable resemblance to *Bellegarde*, but the leaves had kidney-shaped glands. The flavour was not quite what could be desired, and it was, therefore, requested that it be sent again another season.

Messrs. Backhouse, of York, sent two bunches of a Seedling Grape raised by J. B. Faviell, Esq., of Stockeld Park, Wetherby, but they were not sufficiently ripened; it being evident that the variety requires considerable heat.

Mr. Thompson, gardener to Earl of Stamford and Warrington, sent fruit of *Dolichos sinensis*, which was in the form of long terete pods thirty-three inches long.

Floral Committee.—A meeting of the Floral Committee was held on Thursday last.

Mr. Kelly, gardener to Mrs. Redway, Bolton, Lancashire, sent a very handsome new Gymnogramma, which received a First-class Certificate.

Mr. Dodds, gardener to Colonel Baker, Salisbury, exhibited Seedling Dahlia *Marquis of Bowmont*. It is of large size, and very handsome shape, of a rosy-lilac colour. It received a First-class Certificate.

Mr. Keynes, of Salisbury, sent seedling Dahlia *Masterpiece*, a fine-rosy purple, which was Commended.

Mr. Turner, of Slough, sent Dahlias *Nora Creina*, a fine orange and yellow tipped with lilac; and *Elegance*, which is white, tipped with lilac, and flaked with dark crimson. Both received Certificates of Commendation.

Messrs. E. G. Henderson & Son, of Wellington Road, sent a new Bouvardia *Hogarth*, with small rosy flowers, and several plants of *Dianthus Heddewigii*, Balsams, Fuchsias, &c.

TRADE LISTS RECEIVED.

List of Bulbs and other Flower Roots, &c., by E. G. Henderson & Son, Wellington Road, St. John's Wood.—This is a capital catalogue extending to sixty pages, and contains every imaginable bulb to be had in the trade. Of what are called "Dutch Flower Roots," such as Hyacinths, Tulips, Polyanthus-Narcissus, Ranunculus, Anemones, Crocuses, &c., there is a very large assortment; the bedding Tulips alone numbering 190 varieties of all shades of colour. Every variety is fully described, and the catalogue is interspersed with several useful and instructive remarks.

Descriptive List of New Pelargoniums, Cinerarias, Fuchsias, Pansies, &c., by John Dobson & Sons, Isleworth, W.—The Messrs. Dobson are essentially florists, and in this catalogue we have excellent descriptions of the best varieties of florists' flowers, by those who are most competent to furnish them.

A Catalogue of Strawberries cultivated at Egglescliffe near Yarm, by W. J. Nicholson.—Two hundred and ten sorts of Strawberries! for such is the number contained in this list. Of these there are fifty-seven Mr. Nicholson considers "the cultivator cannot err in choosing." Most of the varieties have descriptive notes attached to them.

Autumn Supplement to Carter & Co.'s Gardener's Vade Mecum.—This is a supplement of 48 pages of the size of the "Gardener's Vade Mecum," and consists, to a great extent, of Bulbs, to which are added choice Herbaceous and Alpine Plants, Exotic and Hardy Ferns, &c. The information supplied on the various subjects is as usual very good and practical, and the collections are at once extensive and select.

Autumn Catalogue of Dutch and Cape Flowering Bulbs, by Butler & McCulloch, South Row, Covent Garden.—The only regret we have about this otherwise-excellent catalogue is, that Messrs. Butler & McCulloch should have discontinued the usual handsome octavo size and adopted an inconvenient and not handsome quarto, thereby precluding us and their customers from binding it up along with those already issued of the same size. Nurserymen and seedsmen are apt, without giving it a thought, to alter the size of their catalogues, or to adopt any fanciful shape that may for the time please them; and they may not know that by doing so they effectually prevent the catalogue being stored up and becoming permanent references. We would recommend in all cases a uniformity of size and shape; so that such catalogues as Messrs. Butler & McCulloch and some other houses usually issue might be bound together in a volume and preserved, of which they are well worthy. But all the different sizes and shapes with which our table is loaded render the trade lists little better than a pile of waste paper. After this digression, we must say that Messrs. Butler's is, notwithstanding its shape, an admirable catalogue.

Catalogue of Flower-roots, by Francis & Arthur Dickson and Sons, Chester, is also an excellent catalogue, very neatly got up, but is, like Messrs. Butler's, in the objectional quarto form.

TO CORRESPONDENTS.

Name of Poplars (*T.*).—Those growing about the Courts of Buckingham Place, are the common Lombardy Poplar, *Populus fastigiata*.

Clubbing (*W. Keane*).—Only three weeks ago, in our No. 622, page 328, we gave a full account of the club root and its prevention. Mix abundance of limy rubbish, drift sand, and coal ashes with your heavy soil; do not grow Cabbageworts successively on the same plot, and water the seedlings frequently with liquid manure.

Summer Pears (*A Constant Subscriber*).—The best summer Pears are the following—*Doyenné d'Eté, Jargonelle, Beurré Goubault, Summer Rose, Williams' Bon Chrétien*, and *Beurré Giffard*. We cannot recommend nurserymen, but refer to those who advertise in our columns.

Cuttings (*H. P. Leech*).—You will find full directions for making cuttings in "Florists Flowers for the Many." Any question on any point not clearly understood by you we shall readily answer in these columns.

Planting Pampas Grass (*W. H. B.*).—April is the best time to plant the Pampas Grass, and a dry sandy loam is the best soil for it.

Vines (*T. Jagger*).—In addition to the *Hamburghs* you may have of white Grapes 2 *Grove End Sweetwater*, 2 *Royal Muscadine*, and 1 *Early Summer Muscat*.

Smell of Gas (*W. D.*).—It is impossible for us to explain how such a smell escapes from your pit flue since you say that it does not emit smoke. Probably, either you use coke badly made at the gas works, or ashes from those works were employed in constructing the flue. In either case a very small opening into the flue would allow the fumes to penetrate invisibly into the pit. Has any part of the pit been painted with gas tar? In the event of any of these being the cause your only remedy is to remove that cause entirely.

Bishop Auckland Horticultural Show.—So long as your correspondent "R. C." confined his remarks to the local papers it was unheeded by me, but The Cottage Gardener is read by friends in the north and south, whose good opinion I value; therefore, pray allow me a word of explanation. Three years ago, a short time previous to the Bishop Auckland Flower Show, and soon after receiving my present charge, I was waited upon by a party from the Committee requesting me to exhibit; for reasons which I do not care to tell, I did not do so that season. Last year I did exhibit, and was awarded the head prize for stove and greenhouse plants—a £10 cup. In the interval an alteration in the schedule was effected, which brought the Southend plants down to a level with others in the neighbourhood. At the Exhibition this year our plants again got the £10 cup with greater ease than before. Three of the plants exhibited were free-growing stove creepers, and a knowledge of their cultivation only is necessary to know, that they could not be at an exhibition "three or four years back," with any part of the growth they now possess. The statement is also insulting to the exhibitors of this and the neighbouring county. If our plants have been going back, what must others have been doing? Was there no one to come forward and beat those degenerate plants? The question has yet to be answered in the affirmative, and no one will give the winner of next year's prize a more hearty shake of the hand than I will, should he do so in a fair and upright manner.—John Richardson, *Gardener to Joseph Pease, Esq., Southend, Darlington.*

Apples and Pears (*V. P. T.*)—In addition to those which you have, the *Apples* to suit your situation near Wells, Somerset, will be Early Harvest, Devonshire Quarrenden, Keswick Codlin, Claygate Pearmain, Cox's Orange Pippin, Bedfordshire Foundling, Wormsley Pippin, Ashmead's Kernel, Cockle Pippin, Nonpareil, Sturmer Pippin, Hambledon Deux Ans. And of *Pears*:—Doyenné d'Eté, Jargonelle, Beurré Giffard, Williams' Bon Chrêtien, Seckle, Beurré Hardy, Baronne de Mello, Soldat Esperen, Henriette Bouvier, Glou Morceau, Josephine de Malines, Bergamotte Esperen.

Sauromatum ferox (——).—Our correspondent wishes to know if this is as fine a plant as described by M. Van Houtte. We shall be obliged by information, for we have not seen this *ferox* yet. The first two of these Sauromatums are very queer-looking Arums of the old school, called *guttatum* and *punctatum*. The beauty of the flowers of most Arums, if they have any, is in the markings of their Highland plaids, which wind round them in the form of hoods or cowls; and no one knows how to describe things of many colours better than M. Louis Van Houtte—his descriptions that way may be relied on.

Sowing Purple Orach (*J. R. W.*).—One good way of sowing Purple Orach for the flower garden would be, for one to go to a newly hoed and raked piece of ground in a shrubbery, to take a quarter handful of the seeds, and to throw them broadcast with all one's might at one throw, to rake the ground that afternoon, and to take an excursion ticket to see the sights in Italy and Egypt, to be back here by the end of April, to prick out the seedlings, and do them as Mr. Henderson, of Trentham, says for the rest of the season. But as Mr. Henderson has done them for one purpose, and Mr. Miller for a very different purpose, and as Mr. Beaton has never done them himself or seen others doing them, he longs to have an opportunity of saying to Mr. Henderson, "Muckle obleeged to ye for red Spinage seeds; I'll do them just as ye say." (See page 352.)

Gay Annuals for Sowing in September (*Jane*).—The best and gayest annuals to sow in September for spring work, are the Collinsias, Nemophilas, Clarkias, Leptosiphons, Œnotheras *alias* Godetias, Gilias, Erysimum, Helenium, Platystemon, *Silene pendula*, *Saponaria calabrica* the lace-looking flowers, Virginian Stocks, the best purple Candytuft, and best white ditto; and if you could manage Schizanthuses just like Mignonette seedlings all the winter, they would please you exceedingly next May, particularly *Schizanthus retusus*, which is the best of them, and which is not worth sowing at any other time half so much as in September. You will find the information you require in "Greenhouses for the Many," and "Window Gardening for the Many."

Name of Pear (*O. P.*).—The Pear is most assuredly not the *Jargonelle*. It is a wilding, and must either have been produced by a shoot from the stock, or have been a seedling.

Names of Ferns (*Alethea*).—It is a seedling plant of *Pteris aquilina*, the Common Brake. (*H. B.*).—Your beautiful Fern from Sylhet, is *Cheilanthes dealbata*. (*J. F. Armstrong*).—1. *Lastræa Filix-mas incisa*. 2. *Polystichum angulare*. 3. *Lastræa montana* (*Oncopteris*). 4. *Lastræa spinulosa*. 5. *Lastræa Filix-mas* in a *multifid* state, seldom found constant.

Names of Plants (*Bude*).—Your two Cornish plants are *Cochlearia danica*, and *Euphorbia Paralia*. (*R. F. S.*).—Your plant is an annual, *Platystemon californicum*. It arrived very fresh. (*V. P. T.*).—The annual flower is *Œnothera tetraptera*. The leaf looks like one from *Valeriana officinalis*.

POULTRY AND BEE-KEEPER'S CHRONICLE.

"DOES LIKE PRODUCE LIKE?"

That there is a growing desire to cultivate the prevailing taste for domestic animals is beyond a doubt, and we are happy to see the disposition that is springing up to treat the question scientifically. Some seek for the acclimatisation of foreign races, while others investigate the origin of those we possess. Good must spring from both; and much of our most valuable knowledge has been gained at the cost of amiable enthusiasts who, in searching for their hobbies and fancies, have discovered important truths.

Dr. Darwin has set a great stone rolling, and we are happy to find able men are giving lectures on the subject of "species" in many of our large towns. Of course different people take different views, and we have been asked to give our ideas on the subject. We confess to no small diffidence. We are tolerably *au fait* as to points, breeding, &c.; but when we have to dip into science, and to handle names that tack half the alphabet after them, we feel some care is necessary, and resolve to confine ourselves strictly to our subject, and to the facts connected with it. Anything beyond that must belong to the learned world.

An applicant for information says, "Does like produce like?" We answer, "Yes" and "No." In all admitted breeds, Polands, Cochins, Game, the varieties of Ducks and others that have the stamp of originality upon them, like produces like—not, however, to a feather. The prevalence of dark ones in a Cochin, the brown breast sometimes thrown by the offspring of Black Red Game fowls, and the increase of black feathers in the white top of the Poland continually occur, but nothing beyond this. There is no such thing as breeding Malay from Game, or Dorking from Cochin, or Muscovy from an Aylesbury Duck. Strange things are sometimes heard of; but in those instances there can be no doubt that the birds whence sprung the anomalies were themselves impure and cross-bred, and had thrown back to a distant cross.

If we go beyond our poultry-yard, and look among wild kinds, we find this truth borne out. Every species is distinctly separate; and although when domesticated there have been instances of different breeds intermixing, yet the result has always been a hybrid—an animal incapable of increasing or continuing its species. We believe there is no known instance of hybrids in a state of nature. Those most common in a domestic state are between common fowl and Pheasant, ordinary and Muscovy Ducks, Pintail and Wild Ducks, Canada and Barnacle Geese. They have been seen between the Golden and common Pheasant, but very rarely. The hybrid most sought after and thought of is that between the fowl and Pheasant. In these there is a difference in size between birds of the same nest, which makes people call them male and female, but there is no real distinction; and the delight of the so-called male is to watch when hens leave their nests, and to take on himself directly the office of a sitter.

Distinguished from these we have a manufactured fowl in the Sebright Bantam. As this is a compound of many varieties of the same species, it retains its productive properties. It is true some difference in shape was desired and achieved; but the main point was feather, or, to speak more correctly, colour. It is hardly necessary to state that every feather is or should be accurately laced, and it was by most skilful and patient combinations accomplished. When, however, these birds are kept apart from all others of the same breed, a few years are sufficient to destroy all beauty; and as to gain certain points, it was often necessary to make use of a bird possessing only one of them, joined to positive ugliness in other respects, so, when these birds are left alone, and the combination that made them handsome is not renewed, they seem to lose everything that is pleasing to the eye, and become uglier than any other, showing principally the most objectionable parts only of those birds from which they were made.

In this instance, then, like does not produce like; but the law of Nature shows itself in this as in other things, wise and immutable. One chemist, by a skilful combination of various drugs or minerals, may succeed in forming that which he requires; but if it be left to itself and inspected after a time, it will, probably, be seen the component parts have already divided themselves. Just so in the Sebright Bantams: the two colours, no longer skilfully blended or divided, become patches, the accurate comb becomes a deformity, and the once beautiful breed is to all intents and purposes a mongrel. In a distinct breed—as for instance, Cochin or Dorking, no period of interbreeding will cause it to assume the appearance of any other breed. Degeneracy shows itself by stunted growth, crooked limbs, and large joints; its effect on colour is to increase white just in proportion to the growing weakness of the animal. Like produces like in every pure breed; but it is impossible to get one variety from another, unless at some time there hadbeen a mixture of it in the parent.—B.

SPARKENHOE FARMERS' CLUB POULTRY SHOW.

This was held on the 12th instant. The Judges, Mr. Cattell, Moseley, Birmingham, and Mr. Tomlinson, Balsall Heath, Birmingham, made the following awards:—

Three Best Pens.—Silver Cup, J. Drewry (Dorking, Game Black-breasted Red. Black). Highly Commended, J. M. Baker, Hall End.

Spanish.—First, E. Morley, Sapcote, near Hinckley. Second, J. Meredith, Grendon, near Atherstone.

Dorking (Coloured).—First and Second, J. Hill, Bladon Hill, near Burton-on-Trent. Highly Commended, H. Goodacre, Twycross.

Dorking (White).—First and Second, Captain Buckley, Desford, near Leicester.

Cochin-China (Coloured).—First, J. Choyce, Harris Bridge. Second, Capt. Buckley. Commended, Capt. Buckley.

Game (White, Piles, and Light Colours).—First, T. Everard, Bardon Hill House (Pile). Second, J. G. Ayre, Coleorton, Ashby-de-la-Zouch (Light-coloured).

Game (Red and other Dark Colours).—First and Second, T. Everard, Bardon Hill House (Black Reds).

Hamburgh (Gold-spangled and Pencilled).—Prize, G. Woodcock, Hinckley.

Hamburgh (Silver-spangled and Pencilled).—First, C. Lea, Rowdon House, Hinckley. Second, Capt. Buckley, Desford, near Leicester.

Poland.—First, Capt. Buckley. Second withheld.

Any other Distinct Breed.—First and Second, Capt. Buckley (Blue Andalusian). Commended, Capt. Buckley (Brahma).

Ducks (White Aylesbury).—First, Capt. Curtis, Pailton House, near Lutterworth. Second, J. M. Baker, Hall End, Tamworth.

Ducks (any other variety).—First, Mrs. A. Baker, Grendon, near Atherstone (Rouen). Second, Miss S. Perkins (White Call). Highly Commended, Miss S. Perkins, Sutton Coldfield (Black East Indian); C. Hopkins, Newton Regis (Rouen).

Geese.—First, E. Mills, Shenstone, near Lichfield. Second, Mrs. A. Baker, Grendon, Atherstone. Extra Prizes, J. G. Ayre (Spanish); E. Stevenson, jun., Oakthorpe. (A very good class).

Turkeys.—First, J. Coxon, Freefold, near Lichfield. Second, Capt. Buckley, Desford, near Leicester.

Guinea Fowls.—First, W. Winterton, Wolvey, near Hinckley. Second, W. Hollier. (The whole class Highly Commended.)

Bantams.—First, J. Choyce, Harris Bridge. Second withheld.

Pigeons.—Prize, T. Clulee, Balsall Heath, Birmingham, for Powters, Carriers, Tumblers, and Fantails. *Any other distinct variety.*—First, H. W. Goodacre, Twycross (Trumpeters, white). Prize, W. Choyce, Sibson, for Turbits, Jacobins, Nuns, Archangels, and Helmets. Prize, T. Clulee, Balsall Heath, Birmingham.

Rabbits.—*For the heaviest weight*—Prize, J. Spencer, Odstone. *For the greatest length of ear.*—W. Choyce, Sibson. *For the best of any other kind.*—G. Mousley, Atherstone.

MANCHESTER AND LIVERPOOL SOCIETY'S POULTRY EXHIBITION.

The meeting of this Society was this year held at Bolton, Lancashire, and proved itself by far the most successful one that has taken place for some years. The inhabitants of Bolton appeared greatly pleased with the general appointments; and certainly there was not any lack of either banners, music, illuminations, or indeed every other symptom of rejoicing on the occasion. Great numbers of the local factories were closed, and the throngs of visitors by rail made the streets scarcely passable. The show-field, too, was well attended, and the weather so favourable as to be the almost universal theme of congratulation among the spectators. The coops for the poultry showed much care on the part of the managing Committee; and the promptitude of action displayed by those in authority was quite an improvement as compared with previous meetings—a sufficient proof that personal energy alone is the means of carrying out such exhibitions successfully. The adult fowls were shown in classes apart from the chickens; but in some few of our remarks we shall treat of them collectively.

In *Dorking* fowls, most strange to say, only a single pen competed; these belonged to Captain Hornby, but, certainly, were not nearly so good as the Dorkings generally shown by that gentleman. His chickens of this breed, however, made the most ample amends, being decidedly excellent. In the *Spanish*, Mr. Hyde, of Ashton-under-Lyne, obtained a comparatively easy victory; his fowls were shown in extraordinary good condition for the season of the year, and were particularly good. Mr. Teebay's Highly Commended birds were in quite unfit condition for showing; the chickens belonging to the latter amateur possessed, however, very great merit. *Game* fowls added yet another triumph to the Knowsley stud; and the chickens belonging to Mr. Worrall, of West Derby, will undoubtedly be heard of again as winners. Mr. Stretch, of Bootle, made an easy "walk over" with two pens, both in the general and also the chicken classes for *Cochins*. Nearly every prize for *Hamburghs* and *Polands* was taken by Mr. Dixon, of Bradford, with his usual first-class pens.

Certainly, the Geese, Ducks, and Turkeys did much to support the character of Lancashire for useful poultry. In *Geese* the Embdens were closely rivalled in both the aged and *Gosling* classes by as good Toulouse as would be seen throughout a whole season at the best of our shows. The prize Rouen *Ducks* (both pens) were also very good, and truly bred. Some capital *Silky Chickens* took the premiums in the extra variety class.

It is impossible for any show to have been carried throughout more satisfactorily, and it will be an event long remembered by the inhabitants of Bolton.

The Judges were Mr. Edward Hewitt, of Eden Cottage, Spark Brook, Birmingham; and Mr. William Lloyd, of Brook House, Weaverham, near Northwich.

Dorking (Grey).—Prize, Capt. W. W. Hornby, R.N., Knowsley, near Prescot.

Dorking (any breed).—*Chickens.*—Prize, Capt. W. W. Hornby, R.N., Knowsley, near Prescot. Commended, Mary Ann Thicknesse, Dean, near Bolton.

Spanish.—Prize, S. H. Hyde, of Taunton Hall, near Ashton-under-Lyne. Highly Commended, R. Teebay, of Fulwood, near Preston. Commended, W. Copple, of Knowsley, near Prescot. *Chickens.*—Prize, R. Teebay, Fulwood, near Preston. Highly Commended, J. Dixon, Bradford.

Game.—Prize, Capt. W. W. Hornby, R.N., Knowsley, near Prescot. Highly Commended, J. Fletcher, Stoneclough, near Manchester. *Chickens.*—Prize, H. Worrall, West Derby, near Liverpool. Highly Commended, J. Fletcher, Stoneclough, near Manchester. Commended, Capt. W. W. Hornby, R.N., Knowsley, near Prescot; J. Holme, Knowsley, near Prescot.

Cochin-China.—Prize, T. Stretch, Marsh Lane, Bootle, near Liverpool. *Chickens.*—Prize, T. Stretch, Marsh Lane, Bootle, Liverpool. Highly Commended, J. Robinson, Vale House, near Garstang.

Hamburgh (Golden-pencilled).—Prize, J. Grime, 70, St. George's Terrace, Little Bolton. *Chickens.*—Prize, J. Robinson, Vale House, near Garstang.

Hamburgh (Silver-pencilled).—Prize, J. Dixon, Bradford. *Chickens.*—Prize, J. Dixon, Bradford. Highly Commended, J. Robinson, Vale House, near Garstang.

Hamburgh (Golden-spangled).—Prize. W. Kershaw, Heywood, near Manchester. Commended, J. Dixon, Bradford. *Chickens.*—Prize, S. H. Hyde, Taunton Hall, near Ashton-under-Lyne. Commended, J. Dixon, Bradford.

Hamburgh (Silver-spangled).—Prize, J. Dixon, Bradford. *Chickens.*—Prize, J. Dixon, Bradford. Commended, S. H. Hyde, Taunton Hall, near Ashton-under-Lyne.

Polands (Black with White Crests).—Highly Commended, J. Robinson. Vale House, near Garstang.

Polands (Silver-spangled).—Prize, J. Dixon, Bradford.

Polands (any breed).—*Chickens.*—Prize J. Dixon, Bradford.

Any other Breed.—*Chickens.*—Prize, J. C. Ormerod, Halliwell Lodge, near Bolton (Japanese Bantam).

Bantams (Black).—Prize, J. Dixon, Bradford.

Bantams (Brown Red Game).—Commended, H. Worrall, West Derby, near Liverpool.

Any other Variety.—Prize, R. Teebay, of Fulwood, near Preston (Brahma Pootras). Commended, H. Worrall, West Derby, near Liverpool (Gold-laced Bantams).

Geese.—Prize, Capt. W. W. Hornby, R.N., Knowsley, near Prescot. Highly Commended, D. Jones, Tonge, near Bolton. Commended, L. Walls, West Houghton, near Bolton; R. Wright, Wrightington, near Wigan. *Goslings.*—Prize, Capt. W. W. Hornby, R.N., Knowsley, near Prescot. Highly Commended, D. Jones, Tonge, near Bolton.

Ducks (Aylesbury).—Prize, T. Rigby, Fenny Wood, Winsford, Cheshire. Highly Commended, W. Kershaw, Heywood, near Manchester. *Ducklings.*—Highly Commended, W. Kershaw, Heywood, near Manchester.

Ducks (Rouen).—Prize, Capt. W. W. Hornby, R.N., Knowsley, near Prescot. Commended, G. Crowther, Moor Allerton, near Leeds. *Ducklings.*—Prize Capt. W. W. Hornby, R.N., Knowsley, near Prescot. Highly Commended, J. Holme, Knowsley, near Prescot.

Ducks (any other variety).—Prize, J. Dixon, Bradford (Grey Call). *Ducklings.*—Commended, J. Cannon, Spring Bank, Turton, near Bolton (Muscovy). Commended, D. Jones, Tonge, near Bolton.

Turkeys.—Prize, Capt. W. W. Hornby, R.N., Knowsley, near Prescot. Highly Commended, J. Dixon, Bradford.

Extra Stock.—Hamburgh (Golden-pencilled). *Chickens.*—Commended, R. Roberts, Clifton, near Preston.

OUR LETTER BOX.

Rabbit-hutches (*H. T. J.*).—It is much better to whitewash than to paint the inside of hutches. You may paint the outside, as the tenant cannot gnaw there. Our correspondent will be obliged by any information as to how rabbit skins are dressed.

Lice in Poultry-house (*C. D.*).—Limewash the inside of your poultry-house, using lime fresh from the kiln, and mixing a handful of flowers of sulphur in every bucketful of the limewash. To prevent the occurrence of vermin, the floor of the roosting-house should be covered some inches deep with sand, the droppings raked off every morning, and the sides of the house limewashed as above directed, at least twice annually. The nests in the laying-house should be frequently renewed, and the whole interior of that house similarly limewashed.

Spurs of Dorking Cock (*Gallus*).—It is not desirable that the spurs of a Dorking cock should be on the outside of the legs, but it is not a disqualification. If competition were so close that some point was necessary in order to come to a decision, it would turn it against the bird with this peculiarity. It is very common in Dorkings, and when met with, it is almost always in those of unusual size.

WEEKLY CALENDAR.

Day of M'nth	Day of Week.	SEPT. 25—OCT. 1, 1860.	Weather near London in 1859. Barometer.	Thermom.	Wind.	Rain in Inches.	Sun Rises.	Sun Sets.	Moon Rises and Sets	Moon's Age.	Clock after Sun	Day of Year.
25	Tu	Gnaphalium uliginosum.	29.842—29.787	69—51	S.	—	53 af 5	50 af 5	43 0	10	8 29	269
26	W	Gnaphalium gallicum.	30.076—29.831	68—51	S.W.	1·68	55 5	48 5	55 1	11	8 49	270
27	Th	Erigeron canadense.	30.001—29.894	65—45	S.	·01	56 5	46 5	4 3	12	9 9	271
28	F	Senecio viscosus.	29.809—29.625	66—42	S.	·19	58 5	43 5	13 4	13	9 29	272
29	S	Michaelmas Day.	29.730—29.638	65—44	S.W.	·01	59 5	41 5	21 5	14	9 49	273
30	Sun	17 Sunday after Trinity.	29.789—29.768	65—51	S.W.	·20	59 5	39 5	rises	☺	10 9	274
1	M	Aster tripolium.	29.929—29.733	67—53	S.W.	—	vi.	36 5	33 5	16	10 28	275

Meteorology of the Week.—At Chiswick, from observations during the last thirty-four years, the average highest and lowest temperatures of these days are 64.8° and 44.6° respectively. The greatest heat, 82°, occurred on the 25th, in 1832; and the lowest cold, 24°, on the 27th, in 1828. During the period 107 days were fine, and on 124 rain fell.

WORK FOR THE WEEK.

KITCHEN GARDEN.

Artichokes, cut down the flower-stems of the late plantations as soon as done with, and keep the plants free from decayed leaves. *Cabbage*, continue to plant out the main crops. Keep the late seed-beds free from weeds. *Capsicums*, the green pods of the large sort to be gathered on the first appearance of frost. *Lettuce*, plant out some of the Cabbage sorts into frames for winter use. The soil to be light, and but little air to be given until the plants begin to grow. *Onions*, slightly thin the autumn sowing when they are a few inches high. *Parsley*, cut down, if not already done, a portion of the spring sowing, that it may shoot again before winter. Pot some good roots, to be forwarded in heat when wanted, for giving a supply during severe weather.

FLOWER GARDEN.

From the present time to November is generally considered the most favourable season for transplanting evergreens; the ground to be well trenched, and drained if necessary. For single plants a round hole merely sufficient for the roots is not enough, as they require that the ground around should be well worked up for the more free progression of their future roots. When each tree or shrub is planted, to be secured from high winds. Put in cuttings of Aucubas, Laurels, Privet, &c.; they can be increased by layers, as also other sorts that do not strike readily from cuttings. Plant the offsets of Tulips. Continue to pot off or to plant out the struck layers of Carnations and Picotees. Divide the roots of Pansies, if not already done. If a display of forced flowers is intended to be made, they should be obtained forthwith, to be potted and plunged in the warmest corner of the garden, from whence they may be successively introduced to the forcing-pit from the middle of November to February. They should comprise the various Rhododendrons, Azaleas of the nudiflora class, with various hybrids, Sedums, Kalmias, Daphnes, &c.

FRUIT GARDEN.

Look over the Apples and Pears that have been gathered within the last fortnight, and remove any that are bruised or injured and begin to decay, or they will soon infect the others. Filberts, when ripe, to be gathered; they keep well in a moderate-sized hamper packed firm. As the Apple crop is generally superabundant this season, where there is not the convenience of a fruit-room, some of the better-keeping sorts may be stored away in a dry cellar for a few months if packed in kiln-dried mould or sand. First put a good thick layer of dry material, then a layer of Apples, and so proceed until they are all stored. When gathering fruit take care not to bruise them, as that would cause them to rot.

STOVE.

Give abundance of air at every favourable opportunity, to assist the plants to complete their growth in a strong and healthy manner. The plants in a growing state to be kept steadily growing until they go gradually into a state of rest, without attempting to bring them prematurely to rest. Maintain a brisk temperature in the daytime, and allow the thermometer to fall to about 60° during the night.

GREENHOUSE AND CONSERVATORY.

When the plants are housed do not place them too closely together, but let them have all the light and air possible to ripen their wood. When arranging Pelargoniums for the winter give them the lightest and warmest part of the house, to be kept near the glass without touching each other. All that were cut back to be shaken from their old soil, and repotted; to be then placed in a gentle bottom heat to excite the roots. The late-struck cuttings to be potted, and placed in a gentle bottom heat. The climbing plants to be attended to, weekly shorting back the shoots going out of bloom, and training the remainder in a manner most suitable to display their natural habits to advantage. The supply of water to the borders in the conservatory to be gradually reduced as the days shorten; but at the same time bearing in mind that the strong-rooted plants will require more than the others. A batch of Chrysanthemums to be taken up from the open ground in showery weather, potted, and placed under glass to forward them; to be watered with liquid manure, and the flower-buds to be thinned.

PITS AND FRAMES.

The heat of the Cucumber-beds containing bearing plants to be kept up. Where there is any forcing-house, those in frames are scarcely worth the trouble and expense of keeping in a bearing state after this time.

W. Keane.

FRUIT AND FLORISTS' FLOWERS SHOW AT THE CRYSTAL PALACE.

This was the best autumn Exhibition yet held at the Crystal Palace. There were 125 yards of Dahlias in three rows, 24 yards of Asters, over 20 yards of Roses, 5 yards of Phloxes, 12 yards of Hollyhocks, over 30 yards of Gladioluses, and Fruit enough to furnish a dessert for an army of volunteers.

The greatest improvement was in the Gladioluses, which were sent from the Messrs. Paul, of Cheshunt, who took the second-best prize in them. Mr. Standish, of Bagshot, who had the first prize, had a prodigious assortment of new seedlings. M. Loise, a florist from Paris, had the third prize; and Mr. Youell, of Yarmouth, an extra prize. The best seedling Gladiolus was from Mr. Standish, and named John Standish, after himself. It is the best in colour, size, substance, and shape, of all the race. There is only one "root" of it yet, and it will be two or three years before it can be on sale, and the same may be said of all these seedlings. The colour is a rich deep crimson outside, and is flushed with the richest tint of vermilion on the inside. The three front or lower petals are slightly feathered with white—a bold, large, handsome flower. Mrs. Standish is the next best,

a pure white suffused on the outside with light lemon, three bright crimson feathers in front, and an orange throat—a striking, bold flower, but of course not of so much genuine substance as John Standish, who is a pillar in the temple of Flora.

The next two best seedlings are of the John Standish cross, and are named Samuel Weymouth and Garibaldi, crimson and vermilion, and feathered flowers. I have made a selection of sorts from all the Gladioli there, which I shall give with some remarks on the family in a separate article.

Roses in thirty-six sorts were from the Messrs. Paul, Keynes, and Francis, and the prizes stood as their names here. The Roses were remarkably good for this season. The following were the principals or best in each prize. Messrs. Paul had Général Jacqueminot, Léon des Combats, Comtesse de Chabrillant (very full), Prince Léon, Duchess of Sutherland, La Reine, Alexandrine Bachmetoff (very full and of a brighter red than in June and July), La Ville de St. Denis, Gloire de Dijon (very fine), Louise Perrony (ditto), Lord Raglan, Mad. Vidot, Triomphe de Rennes (yellowish Noisette), Pio Nono, Aimée Vibert, Duchess of Norfolk, Mad. Villermoz, Madame Masson, Madame Bruni (a fine deep blush or peach-coloured Rose), Comte de Nanteuil, President (a fine Tea Rose salmon and buff), Jules Margottin, W. Jesse, and Baronne Prevost. Mr. Keynes began with Evêque de Nimes (as full as ever), Lord Raglan, Gustave Coraux (a fine dark Rose), Triomphe des Beaux Arts (ditto), Auguste Mié, La Reine, Acidalie, Jules Margottin, Alexandrine Bachmetoff, Général Jacqueminot, Pauline Lauzezeur (a fine crimson), Gloire de Dijon, Duchesse d'Orleans (very large lilacy Rose), Souvenir de la Reine de l'Angleterre (ditto), and Malmaison Rose (ditto). Mr. Francis began with Aimée Vibert, Pierre de St. Cyr, Jules Margottin, Mathurin Regnier, Standard of Sebastopol (a dark Rose), Oriflamme de St. Louis (quite as good as in July, one of the best of recent Roses), Gloire de Dijon, Gustave Coraux, Louis Perrony, Géant des Batailles, Prince Léon, Mad. Vidot, Devoniensis, Saffrano, Souvenir d'un Ami, and Général Jacqueminot.

In the class of twenty-four Roses in single blooms Mr. Keynes was first, Mr. Laing, Twickenham, second, and Messrs. Paul next. The kinds did not differ much from the above in this and the classes for amateurs, and the names of the winners are in the prize list.

Phloxes.—Mr. Turner first, and Mr. Standish second. The best deep purple in Mr. Turner's were l'Enfante Prodigue (a splendid sort), Victor Hugo (ditto), Mr. Punch (fine rosy purple, with deeper eye), Madame de St. Innocent (very fine, and lighter by one shade than Punch), Mareschal G. St. Cyr (a lilacy tinge on a light purple ground). Best pure white Blanche, next shade Enchantress and Orion.

Mr. Standish had his name, and that of Madame—two good Phloxes. His darkest purple were Louis Guerard, Apollon, and Dr. Boisduval. Next shade, Mons. de Boulot, Souvenir d'un Ami, and Mr. Punch. Lilacs and blushes were Mademoiselle Marie, Lady Mary, Madame Masson,—Hollyhocks.

Verbenas were half or one-third bedding sorts, and two-thirds for pots, or goodness knows what, but real florists' flowers, none of which is ever intended for flower gardening. They were in bunches of five trusses, each according to the schedule; but there were not so many, the season being so much against them, and they must also have been grown under glass. They looked capitally, but, except the colour, nothing more can be learned from cut Verbenas, except by florists, for whom I am exempt by virtue of my calling. I took the names in Mr. Turner's and Mr. Smith's; but Mr. Perry, of the Cedars, Castle Bromwich, took the first prize for them. Mr. Smith had more of my kinds, beginning with Leviathan, General Simpson, Formosum, Albion (a deep scarlet), Vesta, Etna (fine), Palermo, Claudia (a new colour, a lilacy-purple and shaded light eye), Mrs. Pennington (fiery scarlet and crimson), Mrs. Cotton Sheppard (a fine rose with a large white eye—a splendid bedder in the Experimental, the best there this season), Snowflake, Professor (a fine rose), Agar or Ajax (crimson), Ocean Pearl (mulberry-purple with white eye), Cato (a streaked thing), Conqueror (ruby colour), Red Rover (scarlet), Madame Perdier (a striped or carnation scarlet), Jupiter (a fine scarlet bedder?), Striata perfecta, Star, and Mrs. McLean.

Mr. Turner's Garibaldi and Mrs. Moore are two fine pleasing sorts of the same caste—a soft purplish blue with white eye. They would make a glorious new bed if they will stand sun and rain. King of Verbenas (light purple and white eye), Il Trovatore (next dark shade after Géant des Batailles), Snowflake, Magnificus, Géant des Batailles, Apollo (dirty red), Mrs. Spencer (red), Beatrice (mottled, lilac, and purple, the best of the fancy singularities in colour), Zampa (the best mulberry-purple, looks beautifully rich), Mrs. McLean, Victor Emmanuel (a fierce fiery, dark crimson with a dark eye), Attraction (well named, being a lighter edition of Zampa), Sultan (the darkest of all), Le Gondolier (a deep rose self), Venus (light), Bellona (rosy), Julie (all but Lady Middleton or lavender shade of lilac), Dr. Sankey (a shot-silk purple and white eye), Lizzie, and Celestial.

As to Dahlias there is no end to them, and as far as sight goes there is no improvement in them for the last ten years; but judged as florists do, they are ten times better now than they were then. The best one there, a new seedling, is named in compliment to Mr. Keynes, of Salisbury; and if any mortal had named such a foxy-brown, dirty, dingy thing after me, I should be after knocking his head off ere long. So you see there are two ways of looking at Dahlias; and if I took my way, and said which were best, the other side would get up a Garibaldi against me, and get the sceptre out of my hand, and between two stools, &c. But they allow me a certain length of tether in the fancy class; and as I never speak well of a bad colour, you may book the following which were in Mr. Dodds' first-prize collection of twelves. Some of these are most extraordinarily beautiful, if we could but do them like him. Highland Mary (yellow picotee), Cleopatra (ditto), Souter Johnny (lilac ditto), Mary Sanders (light lilacy ditto), Garibaldi (fine purple picotee), Leopard (a light rose picotee), Flirt (a buff picotee), and a remarkable unnamed seedling, a French-white edged with deep lilac, in the way of Queen Mab. The following also took my fancy:—Queen Mab (white inside the petals, and a deep scarlet edge all round each—a remarkable flower), Emperor de Maroc (a fine dark purple slightly tipped with white), Elegans (the most elegant and most ladylike of all the flowers I ever saw, light-lilacy ground streaked and spotted all over), Elizabeth (rosy blush), Countess of Bective (another lovely thing, carnation fashion, of deep rosy lilac and white), Pluto (dark purple-tipped), Florie de Kain.

The following were the best Dahlia seedlings in the colour way:—Mr. Turner's lot. The best flower, and the best ever produced for the flower garden, is named Madge Wildfire; it is a new colour—a bright orange-scarlet, like some bright Verbena. Princess of Prussia (a middle sized yellow), Duke of Wellington (a large dark flower), Elegans (the lady-like flower), Mrs. Lindsay (a nice lilac).

Mr. Dodds' seedlings were Marquis of Bowmont (very large, light lilac), Mrs. Dodds (fine yellow), and Mr. W. Fawcett (light lilac, deeply edged).

Mr. Keynes' seedlings—that is, the best from each grower—Andrew Dodds (all but black), Masterpiece (a nice shaded rose-purple), and Alice (a picotee on a rich lilac ground).

German and French Asters were even better than last year, after all the rain and cold weather, and what is most singular, the prizes went very near the same as the last two years. Mr. Betteridge, of Milton Hall, near Steventon, Berks, took the first prize in German Asters;

and Mr. Charles Sandford, from Haffield, near Ledbury, and now gardener to Theodore Thomassett, Esq., Church Hill, Walthamstow, Essex, had this the third running best prize for French Asters, and both lots were the finest ever seen in England. These are not named individually, but they must stand in so many distinct sorts.

HOLLYHOCKS.—Lady Taunton was the only spike of Hollyhock there—a fine rosy-salmon kind; Lord Taunton being in single blooms, like all the rest of the collections, and of a dark Spanish-brown colour, both from Mr. Bragg, of Slough. But, of course, Mr. Chater, of Saffron Walden, took the best prize, as usual; he had capital good kinds. And now that the Hollyhock is decidedly a florist's making, there is no need to see them in spikes, or to say anything about colour—two ideas of vulgar antiquity, and the last two of all the ideas which enter the head of a genuine modern florist. Any unearthy colour from the bottom of the sea, or the shade of anything you can buy in the Shambles, is as good as John Standish's Gladiolus for a florist, provided all the other points are up to his mark. The best Hollyhocks by colours, therefore, are here given:—Sylvia (the best rose colour), Mary Ann (scarlet), Lucy (dark scarlet), Géant des Batailles (just like it), Black Knight (the same), Tyrian Prince (a reddish-purple), Mrs. Chater (very large, full deep salmon colour). Verily the French nurseryesses have not the monopoly of getting their names to the best flowers. We got into the fashion without the treaty, and you will say so when you see Mrs. Standish Gladiolus, and Mrs. Chater Hollyhock. The next best is Harriett (a light purple), Prince Charlie (lilacy purple), and Neptune, just to show you the meaning of an unearthly colour, and when we come to that it is time to stop: the rest, but not half the exhibitors of Hollyhocks or any other class, will be found in the prize list.

FRUIT.—The fruit was sufficient for a taste to the thousands who visited the Show; and to say that the Pines were better than the Grapes, or that the Grapes exceeded Peaches and Nectarines, or that either could vie with Apples, Pears, and Melons. The greatest improvement was in the latter; and why so, was because there was a greater proportion than usual of very small Melons. Very large Melons, like very large Apples and Pears, are only fit to dish up for a certain class of consumers.

Altogether the fruit was not so thoroughly ripe as it is sent to the tables of the high nobility; but one reason is, that fruit from a distance could not bear the carriage if it were dead ripe. As most people expect more about flowers from me than fine desserts, I do not dive into the merits of ordinary dessert fruit, only to new kinds—as Snow's Muscat Hamburgh, for which Messrs. A. Henderson & Co. offered five guineas and three guineas prizes; and the Buckland Sweetwater, from Messrs. Ivery & Son, of Dorking; but I generally look to see what Her Majesty and the Duchess of Sutherland get for their collections, knowing how particular the two desserts must be when the best foot is foremost. Her Majesty did not exhibit this time; but Her Grace was first in the class of six dishes to a dessert, and second in that of the eight dishes, besides extras; and you will see below with whom the Duchess of Sutherland had to compete; also, that Mr. A. Henderson, instead of Mr. Fleming, is now at the head of the dessert table.

The collection of six dishes consisted of remarkably fine Black Hamburghs, large white Tokay, a green-fleshed Melon, Chancellor and Barrinton Peaches, and Trentham green-flesh Melon. In the eight-dishes collection were a fine Queen Pine, Muscat of Alexandria and Black Hamburgh Grapes, Barrington and Noblesse Peaches (very fine), Violette Hâtive Nectarine (ditto), Trentham green-flesh Melon and Cherries. And in the odds and ends Mr. Henderson exhibited twelve kinds of Grapes, for which an extra prize was awarded, and also for a collection of Cherries.

The five-guinea Muscat Hamburgh was won by Mr. Bristow, gardener to G. Orme, Esq., Broodwater, Sussex, with three handsome middle-sized bunches, not dead ripe. The three-guinea prize went to Mr. Kay, a great fruit-grower at Finchley. This was a close run; but riper bunches of this kind, from a pot plant grown by Mr. Snow himself, were exhibited; and three bunches of it, twice the size of the London ones, came up from Wales, from Mr. Maher, gardener to Sir R. W. Bulkeley, Bart., M.P., Baron Hill, Beaumaris. These I tasted, knowing the Welsh and Scotch would never differ about a few Blackberries, and I found it as highly flavoured as Mr. Drewet does the Alexandrian Muscat for Mrs. Cubitt; but good judges who tasted both the Welsh and English growth said the latter were not quite so muscaty. This Muscat Hamburgh is in the first class of useful Grapes, and as easy to do as a common Hamburgh.

The Buckland Sweetwater, from Messrs. Ivery, of Dorking, I tasted before; and here it was again from a cool Camellia-house where plants are set constantly, but the bunches were as large and as well set as any Hamburgh; and a sample from a riper bunch, showing that this Sweetwater turns amber colour when dead ripe, which none of the other Sweetwaters ever do to the same degree.

There was a curious example of a Peach growing at the extremity of a fruit-shoot, without a wood, bud, or leaf before it. This was from Paris, but the thing is not so rare as our Paris friend supposed. And I must mention the black Grapes from Mr. Spary, of Brighton—all the go at the Shows. People know these as the blackest of all black Grapes; but I mention them for a very different purpose. Mr. Spary has invented a Garibaldi sort of fumigator, to drive the mildew from the Grapes and Vines by invading their quarters with sulphur and something else, which he mixes, and kills the mildew with it. The bunches exhibited the process very distinctly.

D. BEATON.

FLOWERS.

DAHLIAS.

Class 1.—50 *Blooms, dissimilar varieties.*—First, C. Turner, Royal Nurseries, Slough, Berks. Second, J. Keynes, Salisbury. Third, J. Harrison, Nursery, Darlington. Extra prize, H. Legge, Edmonton; G. Edward, King Street, York.

Class 2.—24 *Blooms, dissimilar varieties.*—First, C. Turner. Second, J. Keynes. Third, H. May, the Hope Nurseries, near Bedale, Yorkshire. Fourth, G. Edward, King Street, York. Fifth, J. Sealey, St. George, near Bristol. Sixth, T. Baylis, Birches' Barn, Wolverhampton.

Class 3.—12 *Fancies, dissimilar varieties.*—First, C. Turner. Second, J. Keynes. Third, G. Edward. Fourth, H. Legge.

Class 4.—(Amateurs only) 24 *Blooms, dissimilar varieties.*—First, W. Dodds, Salisbury. Second, J. Cook, 4, Rosedale Terrace, Notting Hill. Third, C. J. Perry, the Cedars, Castle Bromwich, near Birmingham. Fourth, J. Davis, High Street, Peckham. Fifth, H. Thonneycroft, Floore. Sixth, R. Pryor, gardener to J. Malcolmson, Esq., Campden Hill, Kensington.

Class 5.—(Amateurs only) 12 *Blooms dissimilar varieties.*—First, W. Corp, Castle Street, Salisbury. Second, W. Dodds. Third, T. Hobbs, Lower Easton, near Bristol. Fourth, J. Cook. Fifth, J. Lofley, Brigg, Lincolnshire. Sixth, R. Hopkins, Brentford. Seventh, T. Dickinson, gardener to B. J. Edwards, Esq., Hilperton, Trowbridge. Extra prize, T. Goodwin, Holgate, York; E. Howe, Mulberry Tree, Bromley; C. J. Perry; J. Shadden, Ash, near Sandwich.

Class 6.—(Amateurs only) 12 *Fancies, dissimilar varieties.*—First, W. Dodds. Second, C. J. Perry. Third, W. Corp. Fourth, T. Goodwin.

SEEDLINGS.

Class 7.—*Three blooms of each variety.*—Certificates of merit were awarded to the following:—Mr. Thomas Dickenson, gardener to B. J. Edwards, Esq., Hilperton, for "Beauty of Hilperton;" Mr. Wm. Dodds, Salisbury, for "Andrew Dodds;" Mr. John Keynes, Salisbury, for "Masterpiece;" Mr. George Rawlings, 21, Globe Road, Bethnal Green, for "Joy;" Mr. Charles Turner, Royal Nurseries, Slough, for "Princess of Prussia."

ASTERS.

Class 8.—24 *German Asters, dissimilar, single blooms* (quilled).—First, R. H. Betteridge, Milton Hall, near Steventon, Berks. Second, T. Westbrook, Abingdon, Berks. Third W. Molyneux, Nuneham, Oxfordshire.

Class 9.—24 *French Asters, dissimilar, single blooms* (tasselled).—First, C. Sandford, gardener to Theodore Thomassett, Esq., Church Hill, Walthamstow, Essex. Second, J. Scowen, gardener to W. Cotesworth, Esq., Walthamstow. Third, R. H. Betteridge.

ROSES.

Class 10.—36 *Roses, distinct varieties, three trusses of each.*—First, Messrs. A. Paul & Son, Nurseries, Cheshunt, Herts. Second, J. Keynes. Third, E. P. Francis, Nurseries, Hertford.

Class 11.—24 *Roses, distinct varieties, single blooms.*—First, J. Keynes. Second, R. Laing, Nurseries, Twickenham. Third, Messrs. A. Paul and Son.

Class 12.—24 *Roses, distinct varieties, single blooms* (Amateurs only).—First, T. Blake, gardener to E. H. Green, Esq., Sprangewell, near Ware, Herts. Second, T. H. Cooper, Slough, Bucks. Third, W. Kaile, gardener to the Right Hon. Earl Lovelace, East Horsley Towers, Ripley. Fourth, H. Thonneycroft, Floore.

HOLLYHOCKS.

Class 13.—24 *Hollyhocks, distinct varieties, single blooms.*—First, W. Chater, Nurseries, Saffron Walden. Second, H. May. Third, Rev. S. W. King, Saxlingham, Norwich.

Class 14.—12 *Hollyhocks, distinct varieties, single blooms* (Amateurs only).—First, Rev. S. W. King. Second, H. Glasscock, Bishop Stortford, Herts. Third, T. Bailey, gardener to T. T. Drake, Esq., Shardeloes, Amersham, Bucks.

SEEDLING HOLLYHOCK.

A certificate of merit was awarded to Mr. W. Chater, Nurseries, Saffron Walden, for "Regina."

VERBENAS.

Class 15.—24 *Verbenas, distinct varieties, five trusses of each variety.*—First, C. J. Perry. Second, C. Turner. Third, J. Smith, florist, Hornsey Road, Islington.

GLADIOLUS.

Class 16.—*For the best collection.*—First, J. Standish, Royal Nurseries, Bagshot. Second, Messrs. A. Paul & Son. Third, Mons. Loise, Grainier Fleuriste, Quai aux Fleurs, 3, Paris. Extra prize, Messrs. Youell & Co., Royal Nurseries, Great Yarmouth.

PHLOX.

Class 17.—18 *Spikes, distinct varieties.*—First, C. Turner. Second, J. Standish.

Extra Prize, 10*s.* 6*d.*, for a design for a flower garden, by Mr. T. Varney, gardener to W. Smith, Esq., Upper Norwood.

FRUIT.

Class A.—*Collection of eight dishes, distinct kinds.*—First, T. Bailey, gardener to T. T. Drake, Esq., Shardeloes, Bucks. Second, A. Henderson, Trentham, Staffordshire. Third, T. Dawson, gardener to Earl Cowper, Panshanger, Hertford.

Class B.—*Collection of six dishes, distinct kinds.*—First, A. Henderson. Second, T. Bailey. Third, T. Frost, Preston Hall, Kent.

Class C.—*Pine Apple, single fruit, any variety but Queen.*—First, G. Cameron, Goodwood Gardens, Sussex. Second, — Surman, gardener to H. W. Dobell, Esq., Eltham. Third, J. Lowe, gardener to Messrs. Weeks and Co., Chelsea.

Class D.—*Pine Apple, Queen, single fruit.*—First, S. Solomon, Peckham Rye. Second, W. Austin, gardener to Hon. R. Curzon, Tooting. Third, E. Spivey, gardener to J. A. Houblon, Esq., Hallingbury, Essex.

Class E.—*Grapes, boxes of* 12 *lbs.*—First, G. B. Shoulls, Finchley; E. F. Harrison, Weybridge; W. Hill, gardener to R. Sneyd, Esq., Keele Hall, Staffordshire (equal). Second, T. Frost, Aylesford; P. Kay, Finchley; S. Solomon (equal). Third, J. Monro, Rabley, near Barnet. Extra prize, W. L. Childe, Kinlat, Worcestershire; H. Payne, gardener to J. Bedall, Esq., Bloomfield Lodge, Chelmsford.

Class F.—*Grapes, Black, two dishes, distinct kinds.*—First, W. Hill. Second, C. Little, Stoke Court. Third, E. Sage, Atherstone.

Class G.—*Grapes, White, two dishes, Muscat or any other variety.*—First, T. Frost. Second, J. Roberts, gardener to the Hon. Captain Bury, Tullamore. Third, C. Little. Extra prize, T. Reid, gardener to T. N. Farquhar, Esq., Sydenham.

Class H.—*Grapes, the largest bunch af any kind.*—First, H. Payne. Second, T. Burnett, Brentford. Third, G. W. Shoulls, Finchley.

Class I.—*Peaches and Nectarines, four dishes, two kinds.*—First, E. Robinson, gardener to R. Benyon, Esq, M.P., Reading. Second, J. Morris, gardener to T. White, Esq., Weathersfield. Third, W. Kaile, gardener to the Right Hon. Earl of Lovelace, Ripley.

Class J.—*Peaches and Nectarines, two dishes.*—First, J. C. Dwerrihouse, gardener to Viscount Eversley, Eckfield; J. Smith, gardener to Coles Child, Esq., Bromley (equal). Second, S. Solomon; C. Little (equal). Third, A. Ingram, gardener to J. J. Bland, Esq., Reading; W. Reid, gardener to J. Hunt, Esq., Sydenham (equal).

Class K.—*Melons, green-fleshed, single fruit.*—First, T. Bailey. Second, J. Pottle, gardener to T. B. D. Coloin, Esq., Woodbridge. Third, J. August, Beddington.

Class L.—*Melons, scarlet-fleshed, single fruit.*—First, S. Elliot, gardener to F. Soames, Esq., Lee, Kent. Second, C. Little. Third, W. Humber, South Hall.

Class M.—*Figs, two dishes,* 12 *fruits each, distinct.*—First, E. Robinson. Second, E. Spivey, gardener to J. A. Houblon, Esq., Hallingbury Park. Third, A. Eman, gardener to Messrs. Trotter, Epsom.

Class N.—*Cherries, two dishes, in fifties.*—First, T. Dawson, Hants; S. Snow, gardener to the Countess Cowper, Silsoe, Beds (equal). Second, E. Spivey. Third, A. Henderson.

Class O.—*Plums, three dishes, distinct kinds,* 10 *fruits each.*—First, S. Snow. Second, J. Smith, Bromley. Third, W. Kaile, Ripley.

Class P.—*Apples, dessert, six dishes, distinct varieties,* 12 *fruits each.*—First, T. Frost, Preston Hall. Second, W. Holder, Eaton College. Third, E. Spivey.

Class Q.—*Apples, kitchen, six dishes, distinct varieties,* 12 *fruits each.*—First, R. Heather, gardener to R. Pulsford, Esq., Ember Road, Kingston. Second, J. C. Dwerrihouse, Eckfield. Third, J. Mortimore, gardener to Miss Brown, Carshalton.

Class R.—*Pears, six dishes, distinct varieties,* 12 *fruits each.*—First, C. F. Harrison, Weybridge. Second, J. Halley, Blackheath. Third, J. Holder, Reading.

Class S.—*Pears, three dishes, distinct varieties,* 12 *fruits each.*—First, W. Rattray, gardener to J. Back, Esq., Cobham. Second, C. F. Harrison. Third, T. Frost, Preston Hall.

Class T.—*Pears, single dish, for weight.*—First, C. F. Harrison. Second, T. Frost, Preston Hall. Third, J. Morris, gardener to T. White, Esq., Weathersfield.

Class U.—*Pears, single dish, for flavour.*—First, J. Hawes, Oxon. Second, J. C. Dwerrihouse. Third, C. F. Harrison.

Class V.—*Miscellaneous.*—Prize £1 to each of the following:—W. Hill, Keele Hall; J. Waters, gardener to A. F. Moore, Esq., Sydenham; A. Henderson, Trentham; A. Lepere, Paris. Prize, 10s., to each of the following:—A. Scott, gardener to the Rt. Hon. Lord Sherbourne, Gloucestershire; C. Frisly, near Lincoln; Messrs. J. Weeks and Co. Chelsea.

Class W.—*Best Dish of Snow's Muscat Hamburgh Grape.*—Prizes given by Messrs. Arthur Henderson & Co., Pine Apple Place, Edgeware Road. First, J. Bristow, gardener to G. Orme, Esq., Sussex. Second, P. Kay, Finchley.

Judges.—*Of Flowers,* Messrs. J. Edwards, W. Holmes, J. R. Kinghorn, J. Robinson, C. Edmonds, and R. Ruffit. *Of Fruit,* Messrs. A. Stewart, L. Solomon, and L. M. Carson.

GROWING FERNS IN BASKETS.

As an amateur Fern-grower on a very small scale, I may mention that I have found the advantage of substituting (at a small increased expense), for common garden pots, basket or wicker-work, wrought in the same form or model as the pots. Not only do I think that the plants thrive better, receiving more nourishment from air, but, when painted, the baskets look much prettier, and I am sure will last many years. In watering there is an advantage, as I dip them nearly up to the rim for a minute or two, avoiding wetting the surface, the moisture entering abundantly and more uniformly at the root through the basket-work with ready drainage. I have tried pots of perforated zinc, but prefer the baskets.—T.

DISTINGUISHING ORCHIDS WHEN NOT IN FLOWER.

We have growing in a house to themselves some forty-five different species of Orchids. Will some correspondent kindly give me a few notes by which I may tell by the form of the leaf, the manner of growth, &c., under which class each comes? The seller marks one an Oncidium, another a Maxillaria, &c., but why? All belong to the order Monandria of class Gynandria, and natural order Orchidaceæ. With most English plants and Ferns a very cursory inspection suffices, though there may be neither flower nor fructification; and these Orchids with their very marked foliage ought not to occasion greater difficulty. Suppose some morning on entering the Orchid-house I find some half dozen with their labels gone—not an unlikely thing, as amateurs, whose (so called) gardeners are mere waterpots and spider-brushes, well know—how am I to know which is Cymbidium pendulum, which Dendrobium speciosum, which Maxillaria, &c.?—M. Karl.

[Orchids are not more easy to discriminate by their leaves than are the Grasses. Your query embraces a wide field of botanical knowledge, which to fully survey would occupy a volume. It is quite true, as you observe, that Linnæus has arranged Orchids under a class which he names Gynandria, and an order named Monandria, with also a small number in an order named Diandria, and all are placed in the natural order Orchidaceæ. The seller of your Orchids has named one an Oncidium, another a Maxillaria, and you ask the reason why. Now, to give you the reason why these plants have had such names given to them, and how you are to distinguish them, would take up too much space in our columns. The different characters by which each genus is known to botanists depend more upon the difference observable in the flowers than in the foliage or the pseudo-bulbs. In Oncidium, for instance, some species have two-feet-long, thick, fleshy leaves; others have thin leaves of various forms, some not more than two inches in length. In the pseudo-bulbs there are equally as many various forms and sizes, whilst some have scarcely any pseudo-bulbs at all. The genus Dendrobium has, in general, very long pseudo-bulbs, but some species have very short ones. Maxillarias also vary, but not so much.

To show you to what extent your query leads, to give you the desired information, read the following botanical description of the genus:—Trichopilia. Sepals and petals of the spreading perianth equal, linear, crisped. Labellum large, convoluted, parallel to the column, three-lobed, the intermediate one somewhat two-lobed, flattish, naked inside. Column round, club-shaped, the clinandrium hooded, three-lobed, villous, fringed. Anthers one-celled, compressed, convex in front. Pollen masses two, furrowed at the back, adherent to slender wedge-shaped caudicles, gland very small. Plant with fleshy pseudo-bulbs clothed with spotted scales, one-leaved; leaves leathery, flat, or slightly folded; flowers axillary, solitary. Such are the generic characters by which Trichopilias are known from any other genera; and any Orchid that has these generic marks is a Trichopilia.

We will give you one more genus to show the difference. Odontoglossum.—Perigone spreading, with narrow, acuminate, free segments, the outer and inner equal. Labellum clawed, continuous with the column at the base, not spurred, undivided; the lamina spreading, crested at the base. Column erect, membranously margined, winged on both sides at the apex. Anthers two-celled; pollen masses two, solid; caudicles linear; gland hooked. Plant epiphytal, pseudo-bulbiferous; leaves plaited; scape terminal, sheathed; flowers showy. Every Odontoglossum has these generic characters.

You will observe by the above characters that in order to know any Orchid you must procure a good botanical work that describes each genus. In the meantime, however, you may consult any of your neighbours who cultivate Orchids, and they would tell you which of your plants are Oncidiums, which Maxillarias, which Dendrobiums, &c. Mr. Ellis, gardener at Norwood Hall, near Sheffield, is near you, and is a good man to refer to; or Mr. Payne, gardener to E. Smith, Esq., near Norwood Hall, is equally knowing in Orchid lore. Either of them would gladly give you information on the subject.]

ON HEATING A VINERY, PEACH-HOUSE, AND HOT-PIT.

I AM at present erecting a small Vine and Peach-house, 32 feet long and 9 feet wide inside; back wall 13 feet high, allotting 12 feet for the Vines, and 20 feet for the Peaches, divided by a glass partition. I propose heating it by six-inch fire-clay pipes (from a furnace), extending the whole length of the house, returning through the Peach-house to the glass partition, and up the back wall. The vinery will be next the furnace, in which there will be only one pipe. I am also erecting cold and hot-pits: the latter I propose to heat by a water-tight tank under it, with pipes from a furnace through the water, the tank to be covered with slates, on which the bed of the pit will be laid. I shall feel obliged by your opinion on this plan, with any suggestions you may think useful.—AN AMATEUR.

[We suppose there is a certain reason for bringing the return-pipe only as far as the partition; if not, we should prefer returning it all the way, and then the vinery and Peach-house would be more equal as respects temperature. Were the houses ours, we should prefer two pipes in the vinery connected with an elbow, and dampers or plugs on both pipes beyond. By this means and a damper at the elbow we could heat the vinery without heating the Peach-house, and could start the one before the other, if we deemed it advisable. We should also prefer nine-inch pipes to six-inch, and we should like the flow-flue to be formed for four feet or so from the furnace of bricks. Otherwise there is nothing objectionable in the plan proposed. At each corner we would have the pipes terminate in a small hollow column of brick, covered with a tile, so that all sweeping and cleaning of pipes might be done without disturbing them. Our chief reason for recommending nine or even twelve-inch pipes, is owing to the fact, that if the fuel is smoky, the six-inch pipes would be encrusted soon with soot; and if a strong heat was used to burn it, the effluvia given off would not be healthy.

On the principle that what a man himself fancies and plans he will generally do well, we have no objection to find with heating your hot-pits in the way proposed, provided you can make your clay pipes watertight, and have a flue of brick for a few feet from the furnace. We do not know what your object is with heating a tank of water with such pipes passing through it, and covering the tank with slate on which the bed of the pit will be laid. If these slates are close jointed so as not to admit of steam passing through, the heat from such a combination will be as dry as from smoke pipes alone. Some people speak of the moist heat from hot-water pipes, but if these pipes or tanks are so close that no vapour or steam can escape, the heat from a pipe is just as dry as from a flue. In the latter case some deleterious gases may accompany the heat; but, as to dryness, heat for heat, there can be little or no difference. Did we consult economy, therefore, with your hot-pits, we would do without the tank and without the slate covering, would surround the flue or clay piping with open rubble covered with gravel, and on that place the bed, with holes left by which water could be poured on the rubble when a moist heat was required. The moist bottom heat being given by stopping the openings, and the moist top heat by opening them. Atmospheric heat could be obtained by opening and shutting slides at pleasure opposite the rubble. However, have the tank, if such is your pleasure. We merely give the hints as to economy. We would prefer iron pipes for a boiler for such a purpose, as they seldom leak; but the smallest hole or leakage at the joints in your plan will let the water from the tank in, if you still have a tank, and that will soon put your fire out. With regard to works which will be useful to you, read our "Manuals for the Many."]

ROKEBY.

ROKEBY, the delightful residence of G. Morrit, Esq., is situated on the banks of the Greta, in North Yorkshire.

The circumstance of the "Great Magician" having taken the scene of one of his poems from this place has given it a notoriety it might not have possessed; at the same time few places can vie with it in natural beauties. The mansion is a plain square building situated in a beautiful park. On the west of the house are a number of Roman votive altars arranged on a square platform on the grass, of great interest to antiquarians. A little beyond, well screened by trees, are the stables, offices, and kitchen garden. The garden is small, well cultivated, and neat; it contains a range of vineries, greenhouses, and Peach-houses. In the latter is a very fine Stanwick Nectarine, which, under the able management of Mr. Finlay, produces exceedingly fine fruit without cracking. The greenhouses contain a good collection of plants well managed. There is also a large detached vinery, which produces first-rate Grapes.

On the east side of the mansion is a flower garden, a walk from which conducts us to the banks of the Greta. This is decidedly the most beautiful part of the grounds.

> "A stern and lone, yet lovely road,
> As e'er the foot of minstrel trod!"

The river Greta runs with great rapidity over a bed of solid rock. The valley at times is so narrow that the walk has been made with great difficulty—now opening into beautiful glades, now confined in narrow gills, while lofty cliffs of limestone-rock overhung with Ivy, the crevices filled with Ferns and shrubs passing through a fine grove of aged Yews; high above which, on the opposite side, perpendicular white cliffs lift their heads, above which the old tower of Mortham with its elegant battlements is seen. Before the gate yet stands

> "A massive monument,
> Carved o'er in ancient Gothic wise,
> With many a scutcheon and device."

The situation of which before the old entrance-gate is singularly beautiful.

It is much to be lamented that the old tower is much disfigured by modern buildings added thereto. The old hall where the fight took place, so graphically described by Sir W. Scott, is now converted into a cart-shed.

Few localities are so rich in native plants as the banks of the Greta and Tees. Campanula latifolia attains a height of five feet; and Trollius europæus a size seldom seen in cultivation. Woodsia ilvensis, once found on the banks of the Tees, is now eradicated; but a future paper on the Tees and its plants shall follow if worth sending.—R. C.

CULTURE OF VINES IN POTS.

"'A. Z.' will be much obliged by the publication of some of the leading points in the culture of pot Vines, from planting the eyes to fruiting, with the heat required for sorts as under—viz., Muscat of Alexandria, Black and White Frontignan, St. Peter, Muscat Hamburgh, Black Hamburgh, Golden Hamburgh, Trentham Black, and Black Champion. 'A. Z.' cannot find directions in THE COTTAGE GARDENER, with the exception of answers to questions asked by "A COUNTRY BAKER," with regard to keeping Pines and Vines together. 'A. Z.' would keep his Vines in a house on stand (not pit), until fit for fruiting in an orchard-house.

"In Mr. Rivers' directions in his book on pot Vines, he simply says, 'Get a Vine from eye, cut it down to so many eyes.' Now, the query is, Would a Vine seven feet high break any of the bottom half of the eyes? I think not. Therefore, why not have them shorter with fruit nearer the pot?"

"A. Z." must not have examined THE COTTAGE GARDENER very closely, or he would have found explicit and minute directions as to the culture and management of Vines in pots. To save ourselves the trouble of looking over previous volumes, and also

to suit other subscribers who do not possess early volumes, I will merely allude to the prominent points to be attended to, although, for anything I know to the contrary, I may pretty well be only repeating myself.

For Vines to be forced early, I would insert the eyes in January. For Vines to fruit in summer and autumn, the buds may be inserted from January to March. As soon as the Vines are pruned in autumn or the beginning of winter, the young shoots from which the buds are to be taken should be placed in sand or earth in a cool place, so that they shall neither be excited nor deprived of their juices. There are many ways of making the cuttings with a bud in their centre. The mode I prefer, is to cut the shoot right across, about three-quarters of an inch from the bud each way, so as to leave the cutting from one inch and a half to two inches long. The side of the cutting opposite the bud has then a thin film of wood and bark removed for the whole length. This and the two cut ends expose a considerable space of inner bark, or liber, to swell and protrude roots. So much for the cutting.

The modes of setting these growing are also endless. To get strong plants early, no checks should be permitted. When I used, therefore, to grow Vines in pots, I put a cutting into the smallest-sized 60-pot—the smallest above what are called thumbs; a little drainage was placed in the bottom; the pot was filled within an inch of the top with sandy loam and a little leaf mould; on this the cutting was placed firmly, the cut side downwards, and then covered for half an inch with sandy loam firmly pressed together. The cuttings thus made and planted were kept in-doors for a few days, and were then removed to a house furnished with a hotbed in which the pots could be plunged.

When only a few cuttings were thus raised, the mode of plunging them was a matter of little moment. But when I grew a good number at a time, I used to fill a twelve or eighteen-inch pot, or a basket similar in size, with tan or other heating medium, and in that pot or basket I plunged the little pots up to their rim as thick as they could get standing room, and then plunged the big pot or basket. The reasons for this mode were chiefly a greater uniformity of temperature, and the ease with which the temperature could be reduced by lifting the big pot out of the bed a little, and also the ease with which the bed could have the heat removed, stirred up afresh, &c., as the one pot or basket was easier moved than a number of small ones; and, standing in their plunging medium, when moved the small ones were less liable to sudden checks than naked small pots would be wherever they might be placed. To save repetition, I may remark the same plan of plunging was resorted to until the plants came to occupy five-inch pots and onwards.

I used to commence with a bottom heat of 65°, and a top heat of 50°, gradually increasing until the bottom heat reached 80°, and the top heat 65° at night, and from 70° to 80° during the day with sunlight. Until the young shoots get an inch or two in length, air will be of little consequence. Afterwards, the young plants must have fresh air as well as their older brethren.

A new beginner may be surprised how, and especially in such circumstances, the roots grew so much faster than the young shoot from the bud. Success will depend so far on noting this, as though the shoot may be very small. As soon as the little pot is filled with roots it must at once be transferred to a larger one—say four inches in diameter, using similar soil, well aërated and warmed, and plunging the pot again in the hotbed. After this the plants must not have their young leaves more than fifteen inches from the glass. The water used should not be lower than from 75° to 80°. After the next shifting manure waterings may be given; if given before, they should be weak indeed. Under such circumstances, if a sweet nice heat is kept up at the roots, the plant will soon want transferring to a six or seven-inch pot, even though the stem is as yet comparatively small. Go on repotting and plunging the pot in the hotbed until the last shifting into a twelve, fifteen, or eighteen-inch pot. The first will be sufficient for a small productive plant that you can also give a hotbed to when fruiting. The second and third will be necessary where that cannot be given so much; though in all cases a mild hotbed the second season, when in the first stages of growth, will be a great advantage. The last shift for early forcing should be given about the beginning of July, and the pots should remain in the bed until the beginning of September. They should then stand on the top of the bed for a few days, and then pots and plants be taken out of doors in front of a south to thoroughly harden and perfect the wood, placing a slate over the pot to keep off rains, and giving no more water than will just keep the leaves from flagging. Of course, if the plants could receive similar roasting treatment in a house, they would do as well there as out of doors. The great things are first to obtain early and strong growth; and the second thing is to ripen that growth before giving the plants a rest previously to exciting them into growth and fruit.

Before the plants have come this length the training and summer pruning will have required some care. I adopted two plans, and both were equally good according to the purpose intended.

1st. For dwarf plants. In this case, as soon as the youn shoot was from twenty-four to thirty inches in length, the poin was nipped out. This caused laterals to come right from the bottom of the shoot. These were stopped and kept stopped at the second joint, and by June and July were stopped back to the first joint in the lateral. One or two of the upper buds on the stopped shoot would push also, and one of these would be selected for a fresh leader; and this would be stopped again when eighteen inches long and the process repeated again. By this means all the strongest and plumpest buds would be nearest the base of the shoot, and the cane altogether might be left no longer than it was at the first and second stopping. The laterals increase the strength of the stem. I have mentioned above the gradual lessening the size of the laterals. In autumn they must be gradually removed altogether, and nothing left at the joints but the one principal leaf. The great object, then, is to mature the growth already made instead of increasing that growth.

By the other mode I preferred the shoots to be from six to ten feet in length, and did not stop them until they were that length, allowing the laterals, however, to grow in the first stages of growth; but the stopping being prolonged, the lower laterals would be weak in consequence—but that was a matter of little moment. As, however, the stem was fruited round a trellis or otherwise, little was expected from the first foot or eighteen inches of its length, and the bunches were chiefly procured on shoots from prominent buds near the middle and upper end of the shoot. Sometimes I have disbudded such long shoots severely before forcing; and at other times removed the young shoots after as many were selected as the Vine could mature. From five to ten good bunches may be considered good work for a pot, though Muscadines and some of that kind will perfect at times considerably more. In this case, as well as the last, laterals are encouraged until autumn, and then removed in order that maturing may supersede growing.

When the Vines are thus ripened, and the leaves turn yellow and fall, the pots may be removed to a back shed, or any place out of doors. Provided the roots are covered so as to be free from frost, the cooler the stems are kept the better. If out of doors in the end of September and October, those intended to be started in November and December would be better laid down after the leaves were gone, and covered with damp mats or litter to keep them cool.

I shall now speak of early ones started in November or December. Nothing must be done to the pots except removing a little of the surface soil, and supplying with fresh compost. We are supposing the drainage is all right, and that worms have been excluded. The pruning having been chiefly done in autumn, little will now be required. The disbudding we would leave as a matter of discretion. Beginners will prefer thinning the shoots after they show fruit. Nothing is so good as a mild hotbed of tan or tree leaves for starting them in. Begin with a bottom heat of 55° and top heat of 45°, rising gradually in a fortnight to 65° bottom heat, and 55° top heat, never going beyond 60° top heat until all the buds are fairly broken. Keep the stems moderately moist with the syringe. There is none of that difficulty that "A. Z." supposes, in breaking every bud of a long rod if deemed desirable. Nothing is better for that purpose than allowing the stems to recline loosely on the surface of the hotbed. Where that is not convenient, the rod should be twisted round three or four sticks, and the top of the Vine kept lowest. When fairly broken more water will be wanted at the roots, and the bottom heat may range from 70° to 83°, the top heat ranging from 60° to 65° with artificial heat, and from 70° to 85° with sun heat. Muscats and Frontignans may have a few degrees more of fire heat when in bloom; and at that time we like a medium atmosphere, neither very moist nor very dry. The longer the pots are allowed to remain in the bed the better will the plants like it. If indispensable to remove them to another house, the fruit ought least to be fully set, and would be better if the berries had co

menced their second swelling. If the roots are allowed to run through the pots into the bed, and that bed averages about 70° when the fruit is perfecting itself, it will most likely be all the better for it. The general treatment otherwise is the same as for other Vines. To great attention, rich surface dressings, and weak, varied manure waterings, the success is chiefly due. When heavy crops are taken the old plants are of little more use taking more trouble to renew them than to grow young ones as specified above. It will be observed, that in the first stages the little plants take little room. When once fairly started, the house and bed that would do for fruiting plants, would also do for bringing on the young ones.

As to growing Pines and Vines together, "A. Z." will find an article lately that will meet his case. The pinery will do for growing his Vines; but if he intends fruiting them in an orchard-house, it will be time enough to put them there when Peaches would be coming into bloom—say March or April. All that we have said of preparing his plants will apply only in his case. There will be no necessity for resting them early in autumn, as they will have their natural rest in winter before they are excited in a common orchard-house. R. Fish.

HARDY ORCHIDEOUS PLANTS.

(*Continued from page* 371.)

Propagation.—*By Seed.*—In order to succeed in raising plants from seed, proper soils for each species should be used. Fill shallow pans with the soil, and then cover it with a thin layer of moss. On it scatter the seed, and sprinkle sufficient fine sifted moss to cover it; then place the pans in a cold frame, and protect from heavy rains. Gentle showers will do no harm, and if they do not fall imitate them by watering the seed-pans with the finest rose watering-pot. If the seed ripens as early as June it should be sown immediately; but if it is perfected later, gather it and sow it in March following. The seedlings should remain in the pans for a year or two, till they are strong enough to be transplanted either into pots or into a prepared bed such as I have described. This transplanting should be done just before the growing season commences. Treat the seedlings afterwards in the same way as the old-established plants. In two or three years they will flower.

By Division.—At the time of repotting or transplanting examine the tuberous-rooted kinds; and if any offsets are on them take them carefully off and put them into small pots, repotting annually till they flower. Fibrous-rooted species should be divided carefully, and the divisions potted, and the same culture given to them as the young tuberous-rooted plants. The only essential point to attend to in order to succeed in propagating these plants is to put each species in the right kind of soil from their infancy, whether raised from seeds or from division.

Diseases.—The only disease that I know of that attacks hardy Orchids is a kind of dry rot. The same disease is found in the solid bulbs of the Tulip and the Crocus, and it is equally fatal in all: there is no remedy for it. If the leaves stop growing the disease has begun. Pull up the plants attacked with it and expel them from the premises. I do not know that it is contagious, but I would rather be without such dangerous subjects.

Insects.—The most noxious are the red spider, grubs, slugs, and worms. The first thrives best in hot dry weather: therefore the opposite is preventive. If they are found on the leaves of the plants and such are in pots, lay the pots on one side and give the leaves a very severe syringing, which will wash off the insects, webs, eggs, and all, and effectually relieve the plants. To prevent their return dust the leaves with flowers of sulphur.

Grubs in new soils are often rather numerous, and they feed on the young stems just beneath the surface of the soil. There they must be sought for, and, when found, destroyed.

Slugs may be traced by the slime they leave to their retreats, and extracted from thence and put to death. Lime water is certain death to them if their concealment cannot be found.

Worms do not feed upon the plants, but they disarrange the soil, and render it unfit for food for the plants. Lime water, again, is the agent that will destroy these intruders. The best time to apply it is in mild dewy evenings, so congenial to the migrations of slugs and worms. All these insects must be constantly warred with to prevent them injuring the leaves of the plants; for if the leaves are not kept healthy, and thus able to perform their proper functions, the plants will soon fade away and perish.

It now only remains to me to complete my essay on Hardy Orchids to give a list of them; and I shall group them under the different soils that each group requires to grow them in.

CHALKY SOIL.

Aceras anthropophora (man-bearing)
Herminium monorchis (one-bulbed)
Orchis fusca (brown)
hircina (goat)
Smithii (Smith's)
simia (ape)
tephrosanthos (ash-coloured-leaved)
Ophrys arachnoidea (cobweb)
Ophrys aranifera (spider-bearing)
ciliata (fringed)
cornuta (horned)
exaltata (lofty)
fucifera (drone-bee-bearing)
grandiflora (large-flowering)
muscifera (fly-bearing)
tabanifera (dun-fly-bearing)

TURFY LOAM.

Gymnadenia albida (whitish)
conopsea (gnat-bearing)
viridis (green)
Listera cordata (heart-leaved)
Neottia nidus-avis (birds'-nest)
spiralis (ladies' traces)
Orchis latifolia (broad-leaved)
morio (buffoon)
ustulata (scorched)

CHALKY LOAM AND SANDY PEAT.

Anacamptis pyramidalis (pyramidal)
Epipactus latifolia (broad-leaved)
palustris (marsh)
Gymnadenia conopsea alba (white gnat)
cucullata (hooded)
odoratissima (most fragrant)
Habenaria hyperborea (northern)
bracteata (bracted)
Neottia cernua (drooping)
Nigritella angustifolia (narrow-leaved)
Orchis acuminata (sharp-pointed)
globosa (globose)
longicornis (long-horned
militaris (military)
papilionacea (butterfly-winged)
sulphurea (sulphur-coloured)
undulata (waved)
Platanthera bifolia (two-flowered)
Pogonia divaricata (straggling)
pendula (drooping)

TURFY LOAM, SANDY PEAT, AND LEAF MOULD.

Calypso borealis (northern)
americana (American)
Corallorrhiza innata (inborn)
multiflora (many-flowered)
odontorhiza (tooth-rooted)
Cypripedium spectabile (showy)
spectabile album (white-flowered)
spectabile incarnatum (flesh-coloured)
Liparis liliifolia (Lily-leaved)
Habenaria ciliata (fringed)
cristata (crested)
fimbriata (fringed)
lacera (torn)
orbiculata (orbiculate)
psychodes (cold)
spectabilis (showy)
Neottia æstivalis (summer)
autumnalis (autumnal)
Ophrys apifera (bee-bearing)
Orchis ciliata (fringed)
coriophora (bug-bearing)
Cyrillii (Cyrill's)
globosa (globose)
latifolia alba (broad-leaved white)
laxiflora (loose-flowering)
maculata (spotted)
mascula (male)
Nicodemi (Nicodemus's)
palustris (marsh)
parviflora (small-flowered)
provincialis (province)
quadripunctata (four-spotted)
Rivenii (Riven's)
saccata (pouched)
sambucina (Elder-scented)
undulata (waved-leaved)
variegata (striped)

SANDY FIBRY PEAT.

Cypripedium acaule (stemless)
arietinum (rams-head-formed)
calceolus (ladies' slipper)
candidum (white-flowered)
guttatum (spotted)
macranthum (largest)
Cypripedium parviflorum (small-flowered)
pubescens (downy)
purpuratum (purple)
ventricosum (bellied)
Habenaria blephariglottis (eye-lash-tongued)

TURFY BOGGY PEAT.

Cephalanthera ensifolia (sword-leaved)
rubra (red-flowered)
Liparis Læsellii (Læsell's)
Liparis Correana (Correa's)
Listera cordata (heart-leaved)
ovata (ovate-leaved)
Malaxis ophioglossoides (Ophioglossis-like)

T. Appleby.

HEATING A PIT.

I purpose having a pit for Melons, Cucumbers, &c., in four compartments. The pit will be thirty feet long, and six feet wide, and I want to know if hot water or horse-dung will be the best to heat it with, and which will give the least trouble. The pit will have a south aspect.—A Subscriber, E.

[There can be no question that hot water for such a purpose is far preferable to hot dung, as respects trouble. Your divisions will be small. It is possible to heat each separately without the others; but this will increase the expense. We have given such a pit, though with divisions, bottom heat and top heat all the way without stoppage. In winter we used it all for bedding plants, and gave heat only when needed. In spring we used part for Cucumbers and Melons, and the other part for Strawberries, and gave the last plenty of air to keep down the heat. Had we only one such pit, we would give bottom heat to the one half, and top heat too, and only top heat to the other half.]

CULTURE OF VARIEGATED SCOTCH KALE, AND VARIEGATED HYDRANGEAS.

Please to direct me as to cultivation of the coloured-leaved Scotch Kale that is used for garnishing. My variegated Hydrangeas, of which I had a good stock this spring, have all turned to a nasty grey colour. Those in pots and in borders are all alike. Shall I desert the stock, or will the variegation return? —H. B.

[We use the variegated Scotch Kale as freely as any other for the table, though it is also pretty for garnishing. If wanted all the year round, sow in August and April. We generally sow in April, and plant out in summer. It retains its variegated form when boiled. What we had sown for the variegated has come rather plain this season. It is best to save seed from a good plant. In some red, and in others white predominates. If prevented seeding there are less ornamental plants for the flower garden.

The variegated Hydrangea keeps its rich tints best when grown in a higher temperature than the greenhouse. Try a little extra heat with those you have, and most likely you will be satisfied. In such a season as this I find they get shabby out of doors.]

WHAT TO LOOK FOR ON THE SEASHORE.

(*Continued from page* 376.)

Echinodermata (*Continued*).

Asteriadæ.

The next group of Echinodermata we have to take into consideration is that called Asteriadæ, or, more popularly, true Star Fishes, which are cirrhigrade, in contradistinction to the classes previously mentioned, and which it will be remembered were spinigrade. The British species of Asteriadæ are divided into four families by Professor Forbes, who thus classifies them—

"I. The *Urasteriæ*.—Stellate Star Fishes, with rounded arms and four rows of suckers in each avenue. Of this family we have but one genus, Uraster.

"II. The *Solasteriæ*.—Also stellate (sometimes multiradiate), with rounded arms, but only two ranges of suckers in each avenue. Such as Cribella and Solaster.

"III. The *Goniasteriæ* (Angular Stars), which are pentagonal, and have two ranges of suckers. To this family belong the Asteria, Palmipes, and Goniaster. And

"IV. The *Asteriæ*, including Asterias and Luidia, stellate Star Fishes, with the upper surface of the body flat."

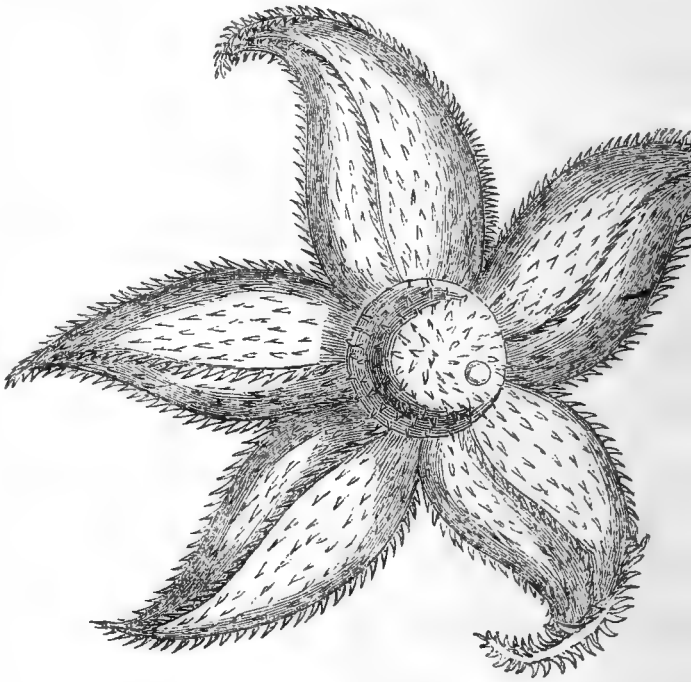
The number five, as usual, regulates this species, although variation is more common than among the other classes of Echinodermata.

Urasteriæ.

The Spiny Cross Fish (*Uraster glacialis*).—This animal has long, pentangular, tapering rays, furnished with powerful spines. It grows to an uncommon size, and has been known to reach a diameter, including body and rays, of thirty-three inches, the longest ray measuring fourteen inches; but it varies greatly in its proportions. It is of a reddish or orange colour, or reddish-brown; occasionally it is found of a bright red. There is one remarkable peculiarity in this creature—namely, the very slight manner in which its rays are attached to its body. Indeed, great care must be taken in lifting it up; for if raised by these loosely-fitting members there is every probability that they will be separated from the trunk. Perhaps, however, this dismemberment may occur by an act of volition on the part of the animal, as was seen to be the case with the Brittle Stars.

The Spiny Cross Fish is confined to the western coasts of Britain. It is found in Syke and elsewhere among the Hebrides, where it may be detected half buried in the sand at low water. It is met with also on the Irish coast, chiefly on a rocky bottom. It has been taken at Belfast, and is very abundant at Cork. Specimens also have been dredged in deep water off the Manx and Cornish coasts. It is, however, a rare species; or it would be better to say, perhaps, that from its ordinarily frequenting rocky places in deep water, it is difficult to get at, rather than rare or uncommon. The variety found on the sandy beach of the Hebrides is an exception to the general rule of their deep water residence.

Common Cross Fish (*Uraster rubens*).—This creature, which is vulgarly known as "Five-Finger," abounds on most parts of



our shores. It is, indeed, the commonest native Uraster, being perpetually cast by the waves upon the sands, and left there by the retiring tide. Its colour varies. It is generally, however, of a dusky red, occasionally yellow or orange coloured, and sometimes purple. It has usually five rays, although a specimen may frequently be found with six, and again with only four. They are rounded and taper to a point, and are commonly about three times as long as the disc is broad; the breadth of each being somewhat less than a third of its length. The "Five-Finger" is furnished abundantly with spines, and measures frequently more than a foot across, although its more usual size is about nine inches.

It has the power of reproducing its rays, and seems to suffer very little inconvenience from the loss of one of them, although a supplementary stomach is contained in each. It is a popular belief among the oyster-dredgers, that the "Five-Finger" gets maimed in this manner in consequence of its predilection for that bivalve luxury, and that when the oyster incautiously opens its shell, the "Five-Finger," awaiting that opportunity, thrusts one of its rays into the opening, the oyster immediately closes its shells upon the intruding member, and detains it firmly. The proprietor of the imprisoned arm, unable to extricate it, breaks it deliberately off from the body and hurries off, wisely preferring the loss of a limb to the loss of life; but this is an idle fable. We have seen in a previous chapter the mode in which the animal helps itself to an oyster.

There is another peculiarity affirmed to belong to the "Five-Finger"—namely, the power of secreting an acrid fluid from the surface, which will burn the skin of any one who handles it. This statement has obtained general credit, but would seem to be very problematical. Professor Forbes, whose authority is unquestion-

able would seem to imply that it is totally unworthy of credit, as he testifies to having handled many of them and experienced no burning sensation, and adds that he has never met with any person who has felt it.

The "Five-Finger" preys upon all kinds of molluscs, but not exclusively upon them. The lug-worms used as baits by fishermen are often seized by it: in which case, of course, the unlucky Uraster falls a victim to his voracity.

On the southern and eastern coasts these creatures are used for manure, and are said to answer the purpose admirably. "Clams" or "Cramps" are the names by which they are known in Cornwall; whilst the Irish have designated them "Devil's Fingers," or "Devil's Hands."

LITTLE CROSS FISH (*Uraster hispida*).—This creature is the smallest of our native Cross Fishes—generally of a bright rose colour, occasionally brown; it has short, rounded, spinous rays—and seldom measures more than a quarter of an inch across the body; the rays are very little longer than the breadth of the disc, and are sometimes even shorter.

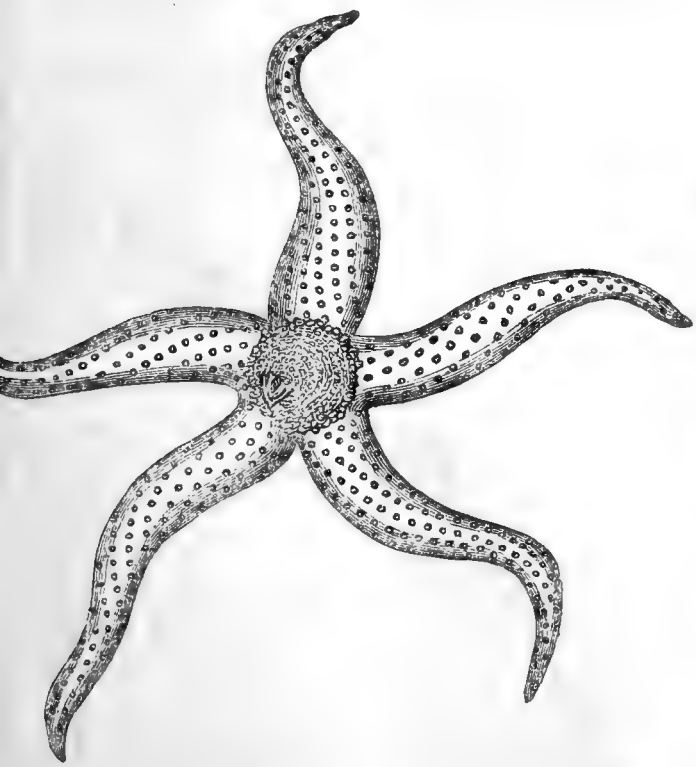
The Little Cross Fish is a scarce species, and in places where it is met with never occurs in any large quantities. It has been found in Anglesea, in crevices of low rocks on the coast of Ross-shire, and under stones on the shore in the Kyles of Bute. It may be met with, also, on the eastern coast of Scotland.

SOLASTERIÆ.

THE EYED CRIBELLA (*Cribella oculata*).—The rays and disc of this animal are covered irregularly with oblong spiniferous tubercles; the rays themselves, five in number, are rounded, and generally about four times as long as the body is broad. At the end of each ray is an eye, protected by an irregularly ovate ring of spines. Its colour is generally red, or deep purple, above, and straw colour beneath; the smaller sort are lighter, and are sometimes seen of a rich vermilion tint. They seldom measure more than three inches and a half across.

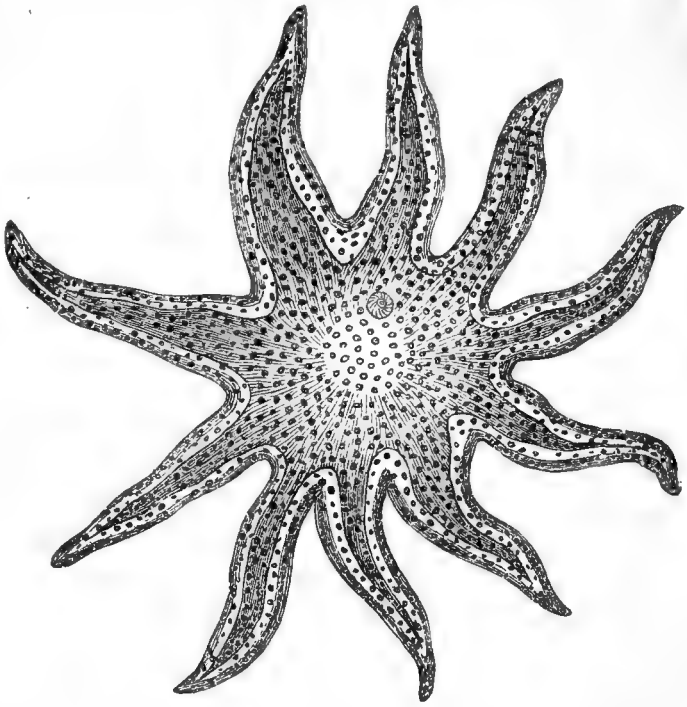
The Eyed Cribella varies much in the localities it chooses. It is generally on the east coast found among the rocks at low water; whereas, on the west, it must be dredged for in deep water; but this rule does not invariably hold good. They are very common in the Irish Sea, and off the coast of Anglesea; nor are they at all rare in Cornwall. The east coast of Scotland swarms with them, and at low water on the Shetland Isles they may be found by hundreds, swimming about with the greatest ease and activity.

THE ROSY CRIBELLA (*Cribella rosea*) has both rays and disc covered with regular longitudinal rows of triangular spiniferous



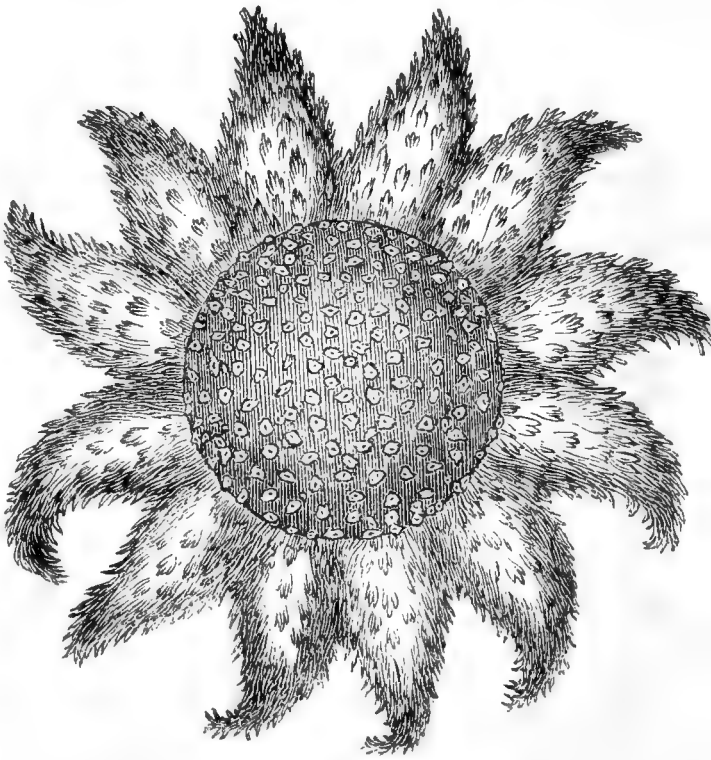
tubercles. The rays are five in number, rounded and tapering, about four times as long as the disc is broad. The spines are very numerous, rough and blunted. The breadth of the disc is about one inch, and the thickness of the rays at their insertion about half an inch. The colour is bright orange. It is almost exclusively a resident on the Irish coast.

PURPLE SUN STAR (*Solaster eudeca*).—This animal has from nine to eleven rays, considerably shorter than the breadth of the



disc, and furnished with little clusters of short, thick spines. The disc and upper surface of the rays are purple; the under surface and sides of the arms cream colour. The largest specimen of this creature measured eight inches and a half across, and it will grow even larger than this. It is common in the Irish Sea, off the Isle of Man, and on the Northumbrian coast.

COMMON SUN STAR (*Solaster papposa*).—This is one of the commonest and at the same time handsomest of the British Star



Fishes. The rays are generally twelve or thirteen in number sometimes as many as fifteen, and are about half as long as the disc is broad; they are slightly rounded, but the disc itself is flat. The upper surface generally is covered with tubercles

arranged in regular rows on the arms, but scattered on the disc. Each tubercle carries a bunch of long spiculiform spines, eighteen or twenty in each bunch.

The Sun Star varies considerably in colour: sometimes the whole upper surface is of a deep purple; the disc, again, is frequently red, and the rays white, and tipped with red; beneath, it is commonly white or straw colour. It grows to a large size, being frequently nine, ten, and eleven inches across. It frequents oyster and scallop-banks, and is distributed all round the British coasts; but is to be found, perhaps, most plentifully at Scarborough at the period of low tides.—W.

(*To be continued.*)

A LIVE SCREEN—TREES FOR A FILLED-UP POND.

I am anxious to hide a footpath which comes between my flower garden opposite the house and an adjoining field. As soon as I came to the house last November I planted a belt of Laurels. They are now doing very well, but owing to the severe winter had to be cut back considerably. What can I put behind the Laurels —that is, between them and the wire fence? I thought of Hornbeam about four feet high, and about a foot apart, to form a hedge, and then keep it cut down to five or six feet, the full height required.

What will do to plant over a filled-up pond still rather wet in winter and rainy weather?—A. P. K.

[Your plan is very good. The Hornbeam will make a sufficient fence without the Laurels after it is up to the proper height. The end of October and through November is a good time to plant the hedge.

A fine plant of the deciduous Cypress would be the best thing to plant in the centre of the filled-up pond, which is still wet. It is a native of marshy land, and a most beautiful tree. The American Weeping Willow, standard high, would be the next best; and a standard of the Kilmarnock Weeping Willow the third best; and for a thick covering all over the surface nothing is better than the common Dogwood, Cornus alba, or Red-wooded Cornus, one of the best woods for skewers.]

YUCCA FILAMENTOSA SUCKERS.

Having an old plant with five large suckers on it, I shall be obliged by being told the proper time to take them off. Also by being informed, if they are not rooted, must they remain on the old plant until they are rooted? If not, will the suckers strike like Pine Apple suckers in a pot with but little heat?—M. F.

[It is not safe or economical to disturb this or any of the Yuccas in the autumn. About the end of April and all through May is the best time to take off ground suckers of them; and the first half of June the right time to take off tops and top suckers, or side-suckers, which are the parts likened to Pine Apple suckers, and which root just as Pine crowns and suckers do, but will do so without bottom heat, or with it if there is the chance. Ground suckers should be taken off with a clean cut from below upwards—not pulled off nor slipped off, for fear of the wounds on the stem festering. Cut them close to the old stem, and if there are three inches of the suckers bare of leaves they are fit to plant; if not, a few of the bottom leaves ought to be slipped off. Then keep them a couple of days in the shade to dry the cuts partially; and then plant four inches deep in light sandy soil, in a warm sheltered place out of doors; and they will root as freely as Pine suckers stuck into a tan-bed.

If that filamentosa were our property, we would first take it up carefully, then cut off the suckers, and plant the old plant in fresh, rich, light soil, and place it a little deeper than it stood before. There are two good reasons for this: First, when Yucca roots are thus stopped the old trunk makes young ones immediately, and both old and young roots work together; and secondly, so many more roots in rich and fresh pasture, so much more growth and strength and length of flower-spike. Tall Yuccas, with four or five feet of bare stems, and from five to ten heads or divisions at the top, are only in their proper places when they stand near ruins, a Swiss cottage, rock or root-work, or steep banks and near waterfalls. In terrace gardens and all dressed grounds Yuccas of all sorts should never be allowed more than a foot or eighteen inches of bare stem, and not more than three divisions in the head. But how are they to be so kept? Why, cut their heads off, to be sure; then divide the crowns, and slip off a few of the bottom leaves of each; let them dry a little like the suckers, and then plant them just as the suckers—the first half of June is the right time for this part of the play. Leave the ugly old stump, or stumps if there be more than one, and they will soon push up shoots like a pollard Oak. Next June have at them again, and cut below the bottommost shoot sucker; slip off, dry and plant as before, and the bare bottom will keep you going at so much a-year till you come to the last cut next the ground, and after that one more cut within the surface will come to the roots. Leave the strongest growth at this last cutting; and if ever you saw a Yucca blossom in earnest, the blossom of your ground growth will be just like it. Who would be without Yuccas after that? But who has seen a Yucca filamentosa hedge two hundred yards long, and every plant in it in full bloom at one time, and none of them under four feet high —the average height being five feet six inches? We have seen the thing this very season, and that kind is hardy enough for the very north of Scotland.

All the Dragon trees (Dracæna) from the Tropics, and all the Club and Cordyline trees from Australia, have the same natural way of growth as the Yuccas, and they belong to the same natural division of a very unnatural-looking order in botany, but are propagated just in the same way. There is an eye, or bud, hidden in their iron hard-looking trunks for every leaf that was on them, and by beginning at the top and lop it off, so many of the hidden eyes start round the pollard top, just like the Yuccas; only that Dragon trees, and Cordyline and Club tree shoots, want bottom heat to root their bare suckers, or whatever you may choose to call them, while the bare bottoms of the young of the hardy Yuccas will root with the common heat of our ordinary summers. Some clever fellows increase very rare Pine Apple plants exactly on this model; and those variegated Pine Apple plants for the shows could be made from top to bottom in the same way.]

DESFONTAINEA SPINOSA.

"A Subscriber to The Cottage Gardener" requests information as to the treatment of Desfontainea—a plant both in leaf and growth resembling a Holly. It has not made any progress in a mixed greenhouse during a whole year, but remained healthy, whilst one of the same size in greater heat became sickly. The plant from the greenhouse has been turned out into a border for two months, where it is increasing in vigour. Will it be safe to let it remain during the winter? It has never yet bloomed.

[Lift the Desfontainea as soon as may be, and winter it in a cool house, keeping it rather dry. As the sun gains power increase the water, and raise the temperature a little, with plenty of air. Flowers will then most likely come pretty freely.]

HEATING A SMALL GREENHOUSE.

I have a greenhouse of the following dimensions, twenty feet by sixteen feet, span-roofed. It is my intention to heat it with hot water, and have had an estimate to do so; but it is so expensive, £19, exclusive of mason's work, that I am reluctant to go to that expense, especially as the house is built more for Grapes than flowers, and I have only the usual bedding-out plants, with Geraniums and Roses, and a few others—nothing at all expensive or choice. What I wish you to tell me is, will a stove be sufficient to keep out frost? Fortunately the flue of the parlour comes so, that I could easily lead the pipe into it. I could also leave the kitchen door open of a night which leads into the greenhouse, and that I suppose would tend to increase the heat. The flower-stand is in the centre, and in severe weather I could move them from the sides of the house and nearer the stove.—J. B., *Saltford.*

[We presume your house is all glass, except on the parlour side, with, perhaps, two or three feet of wall next the ground all round. Nothing is said of the height. If seven or eight feet to the ridge, one iron stove, such as is used in shops, some three feet or three feet and a half in height, round, and some twelve inches in diameter, with a double casing, will heat such a house so as to keep out frost, especially with the convenience of the kitchen door open, and, if the pipes were not in the way, would be best placed at the south-east corner near the door. We presume such a stove with piping would cost from £3 to £4. If

the house was much higher at the ridge—say twelve feet or fifteen feet, and no more height of walls at the sides, we would prefer two smaller stoves placed respectively as the south-east and south-west corners, costing about 50*s.* each—at least, we have seen plenty for less than that sum. The great thing is to have pipes at the junctions, to prevent smoke or iron drip. Such stove or stoves might be placed in October to assist the Grapes, and might be removed altogether in April. Next to these stoves, the cheapest way for heating such small houses is by a small flue under the floor of the house, as several times recommended by Mr. Fish. The flue could go into the chimney as well as the pipes from the stoves. Is there no means of taking such a flue from the kitchen, or even a couple of water pipes from the kitchen boiler?]

LATHYRUS TUBEROSUS WILD IN ENGLAND.

The supposed new British plant growing at Fyfield (Essex), I believe to be the same plant which grows in great profusion in a certain marsh in Canvey Island, there known as "Gay Mead;" it closely resembles what is commonly called the "Everlasting Pea," but is much smaller. Canvey Island having been embanked and drained by a colony of Dutchmen, who established themselves there in 1622, I concluded, when I first saw the plant, that it had been, most probably, introduced by them, especially as I found evidence of its existence on the spot for the space of nearly a century. On showing a specimen to an eminent floriculturist, he at once named it Lathyrus tuberosus, and told me it was brought from Holland about the year 1606, thus confirming my conjecture.

As it is confined to a single marsh, which is completely overrun with it, it was no doubt originally sown there for some specific use—perhaps (as the roots are said to be edible) for food, and may have been introduced into Fyfield for the same purpose, and very likely about the same period. The roots descend to so great a depth that I was informed that its extirpation is impossible. I never saw it growing elsewhere; but if the Fyfield plant be the same it is easily recognised.—H. W. K.—(*Essex Gazette.*)

TO CORRESPONDENTS.

Spergula (*V. L. A.*).—Your plant is *Sagina procumbens* and not the Spergula. It is a weed common all over the kingdom.

Emphasis (*Y. Z.*).—It is very difficult in writing to render the explanation clearer. You are not mindful of the syllabic division of the names. The emphasis is on the Clem and phin in Cle'm-a-tis and Delphi'n-i-um.

Wall Infested with Vermin (*A Subscriber*).—This has been a year peculiarly favourable to the generation of predatory vermin, and we hear of their ravages everywhere. The woodlice harbour in the holes and at the foundation. Have the walls pointed by the bricklayer, and pour abundance of ammoniacal liquor from the gas works close to the base of the wall. This will also destroy snails, slugs, and ants. Goosenecked Onions will not keep without vegetating; so cutting off their leaves, or "stalks" as you call them, will do no harm.

Monochætum Ensiferum Shoots Damping off (*G. S.*).—Give more air, stir up the surface soil, and, provided the plant does not flag, give no more water than is absolutely necessary.

Ice-house (*F. Catt*).—A long article on ice-houses appeared lately (No. 588). In a shed you could only expect to keep ice any time with double walls and double roofing some two feet apart, and the space between filled with straw or sawdust. The walls might be close boarding. If the roof is thickly thatched, all the better. If the outside is tile or slate paint them white. The space between the roofs must be well packed.

Paxton's Portable Boilers (*Mrs. B.*).—They vary in price, we believe; but you can obtain every information if you write to Mr. Hereman, 7, Pall Mall East, London, S.W.

Fire Surface of Boiler (*Nottinghamiensis*).—We think the bottom of a copper boiler should have one and a half square foot of its bottom exposed to the fire to heat eighty feet of four-inch water pipes in a greenhouse. If heated by gas, two square feet will not be too much, and the jets of gas should be numerous.

Various (*A Subscriber, Caermarthen*).—Those who have used the Waltonian Case say it will not do for forwarding flowering plants as you propose. We cannot say from experience whether *Spergula pilifera* would do for a cricket-ground; but as it is improved by being trodden upon, we do not know why it should not. Your *wall trees*, which, through want of attention by the previous tenant, were sadly out of order, and which you have cut back, and they have made promising new wood, we would root-prune in October; or, unless they are very old trees, we would prefer under the circumstances to lift them entirely, and spread the smaller roots near the surface without cutting back the large ones a great deal. We would mulch over them, and water them from a pond twice in June, in July, and in August. After that we would see to a balance between the roots and the branches by slight root-pruning, and by close nipping the summer growths as soon as ever they made a few inches in length.

POULTRY AND BEE-KEEPER'S CHRONICLE.

POULTRY SHOWS.

September 25th. Bridgnorth. *Sec.*, Mr. Richard Taylor, Bridgnorth.
September 28th and 29th. Bradford. *Secs.*, Mr. A. Hardy, Prince of Wales, Bowling Old Lane, and Mr. E. Blackbrough, Black Bull, Ivygate. Entries close September 24th.
October 4th. Middleton Agricultural. *Sec.*, Mr. T. Mills. Entries close September 27th.
October 9th, 10th, and 11th. Worcester. *Hon. Sec.*, Mr. G. Griffiths.
November 7th. Devizes and North Wilts. *Hon. Sec.*, Geo. Saunders Sainsbury, Rowde, Devizes. Entries close October 13th.
November 21st, 22nd, 23rd, and 24th. West of Scotland Ornithological Association, Glasgow. (Pigeons and Canary Birds.) *Sec.*, Thos. Buchanan, 74, Argyle Street, Glasgow.
December 3rd, 4th, 5th, and 6th. Birmingham. *Sec.*, Mr. John B. Lythall, Offices, Unity Buildings, Temple Street, Birmingham. Entries close November 1.

N.B.—*Secretaries will oblige us by sending early copies of their lists.*

NORTHAMPTONSHIRE AGRICULTURAL SOCIETY'S POULTRY SHOW.

There is something essentially English in an agricultural meeting, and more so in this county than any other. In common with many similar societies, it has adopted the wise rule of holding its meetings at all the principal towns in their turn. This not only gives each an interest (*literally*) in the Exhibition, but it affords a spur and incentive to exertions on its behalf. We are, unfortunately, unable to state the number that visited Brackley; but an opinion may be formed from the fact that 30,000 people attended the Meeting last year at Wellingborough. It is a fête: Poultry, cattle, implements, flower show, band of Coldstream Guards, fireworks, grand Society's dinner at three, and concert in the evening. Lofty poles are erected in the streets, around which serpent-like wreaths of ivy and laurel coil themselves. Every description of flag waves from attic windows and tops of buildings; very blue ploughs with very bright shares are hoisted to first-floor windows and surmounted by a strip of white linen, bordered with laurel leaves and dahlias, which says "Speed the plough." Other flags show the owner's taste, calling, or interest. Thus, the grocer, the "cup-of-tea" man, displays a tricolor, on the white compartment of which an inscription shows it belongs to the "Brackley Temperance Society, established 1859;" while "mine host" makes free with the "Foresters," "United Trades," and "Odd Fellows." And then the carriages that ply to and from the station! We never saw such alliances as made a pair on this occasion. Some to all appearance had never gone together in harness; others had never gone at all. But, it is said, there is a special Providence over children and drunkards; and we think the same extends to travellers to and from the station of a town where an agricultural meeting is held. It was a holiday, and we enjoyed it much; the weather was all that could be desired; the winners were pleased, losers took it coolly à la Jacob Faithful—"couldn't help it, wish they could," "no use fretting," "better luck next time." With one more remark we will review the classes, only regretting the entries were not more numerous.

Seeing the quality of the Dorkings that were shown, we cannot avoid asking why it is they are so few? There have been no better birds shown anywhere than were shown here on Friday. *All* that were marked at a guinea each were sold, and there were inquiries for many more at the same price. This cannot fail to be remunerative; but we have again to ask why it is that those whose profession it is to follow agriculture, and who have all the means and appliances to boot, treat poultry as a pursuit beneath notice, while townsmen, professional men, and large numbers of the upper classes, follow it with ardour? The badness of the season may have had to do with it;—there is no complaint of soil, there can be no lack of good stock where such fowls are shown, and it can then only be supineness.

The *Dorkings* were as good as could be, especially the chickens. The *Spanish* hens were very good; but we have never seen cocks so naked or so deep in moult. We are bound to speak highly of the *Game*, which here as elsewhere increase in numbers. The other classes that call for especial notice are Rev. F. Thursby's *Brahmas*, and the *Ducks* and *Turkeys*, which were excellent.

Dorking.—First, Rev. F. Thursby. Second, J. Shaw. Third, R. Wood. Highly Commended, Rev. F. Thursby. *Chickens.*—First, and Special Prize, R. Wood. Second, J. Shaw. Third, Rev. F. Thursby. Commended, A. Thursby.
Spanish.—First, Rev. F. Thursby. Second, J. Shaw.
Game.—First and Second, J. Shaw. Third, E. Clarke.
Cochins.—First, — Tatham. Second, withheld.
Brahmas.—Prize, Rev. F. Thursby.

Ducks (Aylesbury).—First and Second, J. Shaw.
Ducks (any other variety).—First, T. R. Cartwright. Second, J. Beasley.
Turkeys.—First and Second, J. Beasley.

Mr. Baily was the Judge.

DEVIZES AND NORTH WILTS POULTRY EXHIBITION.

We would call the attention of our readers to the Devizes Poultry Show advertised in our columns to-day. The prizes are liberal; and we have just been informed that, in addition to the prizes bestowed by the Committee, the Marchioness of Winchester has most liberally offered a prize of £2 for the best pen of two Cambridge hen Turkeys; and the Secretary, Mr. Sainsbury, a silver cup for the best pen of Cochin-Chinas.

PORTSEA POULTRY SHOW—Sept. 19th & 20th.

(*From a Correspondent.*)

The first Exhibition of this Society was held at the King's Rooms, Southsea, Hants, on Wednesday, Thursday, and Friday, the 19th, 20th, and 21st inst. Although the number of pens in all did not exceed 350, the birds exhibited were, as might be expected (being from the best breeders in the country) of very superior quality. So much so, that many who usually win not having sent their best specimens, found themselves defeated.

This being the first attempt of the kind at Portsmouth, and the Council being new, not one even of its members ever having been engaged in a similar task, it is not to be wondered that some little complaint may have arisen; and to add to their consternation, one of the Judges who just missed the train he should have gone by, delayed publishing the award of prizes beyond the limits of patience of the public. Although a new thing in the locality, it did not seem to be at all appreciated by the citizens of the three towns, and during the three days of the Show the attendance was excessively small. This is much to be regretted, as it will prevent the Council from adding to their prizes, as originally contemplated, and put them considerably out of pocket into the bargain.

The *Spanish*, *Dorking*, *Cochin-China* (Buff, &c.), classes, would have done credit to Birmingham, being very superior indeed. Mr. Kellaway's Cochins stopped the way, for everybody was in raptures at their condition and size. The Silver-spangled *Hamburghs* were very superior, and the *Malays* and *Bantams* far better than usual.

Mr. Fowler and the Marchioness of Winchester contended sharply for *Geese*—in fact, nothing but difference in weight decided the point.

Mr. Fowler's *Ducks* were as usual superb, and Major Hassard may be proud of being highly commended, when exhibiting against such first-rate specimens.

The *Turkeys* were excellent; hardly an inferior pen was exhibited. To take up each class separately would be an endless task, so we shall proceed to notice the *Pigeons*.

In this class, as well as in Poultry, all birds were to be of 1860. Some oversights in reading the rules caused a few empty pens, but very few. As a young Pigeon show it is the first held in England; and, so far as Carriers are concerned, it is not likely to be surpassed for some time. Mr. W. Hayne, of Croydon, kept up his reputation as usual; although the birds of Messrs. Colley and Wiltshire obliged him to surrender a few of the laurels—and the other exhibitors in Carrier classes need not be dispirited at having to contend with such superior specimens.

The other classes in the Show were well represented; and Mr. Childs, jun., of Birmingham, secured the Silver Cup for the greatest number of points. The birds he exhibited were chiefly in the Toy class. This Cup was a donation from Mr. E. Emmanuel, of High Street, Portsmouth.

The Cup for Poultry was secured by Mr. Smith, of Wish Street, Southsea, the well-known breeder of Polands. The pens used were supplied by Mr. Bligh, of Birmingham, and from their light appearance added to the beauty of the specimens. It is much to be regretted that the locality has not supported this movement, although many parties even now say, "Better luck next time."

Spanish.—First, A. E. Smith, 66, Oakley Place, Wish Street, Southsea. Second, J. H. Craigie, Woodlands, Chigwell, Essex. Third, Marchioness of Winchester, Amport St. Mary, Andover. Highly Commended, C. Atkins, Sewer Cottage, Thames Bank, Pimlico. Commended, J. R. Rodbard, Aldwick Court, Wrington, Bristol; J. H. Craigie. (A good class.)

Dorking (Coloured).—First, C. H. Wakefield, Malvern Wells. Second, Marchioness of Winchester. Third, C. H. Wakefield. Highly Commended, G. Griggs, Romford; P. Mason, Brightlingsea Hall, Essex. Commended, Rev. T. L. Fellowes, Beighton Rectory, Acle, Norfolk. (A good class.)

Dorking (White).—First, Capt. J. Beardmore, Uplands, Fareham. Second, Rev. G. F. Hodson, North Petherton, Bridgewater.

Cochin-China (Cinnamon and Buff).—First, Second, and Third, S. Kellaway, Merston, Isle of Wight. Highly Commended, S. W. Kellaway, G. Johnson, Farnham, Surrey. Commended, Mrs. H. Fookes, Whitchurch, Blandford, Dorset.

Cochin-China (Brown and Partridge-feathered).—First and Second withheld. Third, T. Bridges, Bridge Cottage, Croydon.

Cochin-China (White).—First withheld. Second, A. E. Smith.

Brahma Pootra.—First withheld. Second, G. Johnson.

Game (White and Piles).—First withheld. Second, E. A. Smith.

Game (Black-breasted and other Reds).—First, Marchioness of Winchester. Second, Rev. T. L. Fellowes. Highly Commended, W. Rogers, Woodbridge, Suffolk.

Game (Duckwings and other Greys and Blues).—First, A. E. Smith. Second, P. Mason.

Hamburgh (Gold-pencilled).—First, Rev. D. Binney, Shirley, Southampton. Second, A. E. Smith.

Hamburghs (Gold-spangled).—Prize withheld.

Hamburghs (Silver-pencilled).—Prize, Rev. T. L. Fellowes.

Hamburghs (Silver-spangled).—First, J. Newick, Ilminster, Norfolk. Second, Mrs. Pettat, Ashe Rectory, Mitcheldever. Highly Commended. Capt. Beardmore.

Polands (Black with White Crests).—First, T. Edwards, Lyndhurst. Second, G. Ray, Ivy Cottage, Minestead, Lyndhurst. Highly Commended, T. Edwards.

Polands (Gold).—First, A. E. Smith. Second withheld.

Polands (Silver).—First, A. E. Smith. Second withheld.

Malays.—First, W. Manfield, Dorchester. Second, J. S. Fox, St. John Street, Devizes.

Any other variety.—First, A. E. Smith (Andalusian). Second, E. St. John, Oakley, Basingstoke (Sultans).

Bantams (Gold-laced).—First, W. Spray, Market Street, Dunstable. Second, Rev. G. F. Hodson.

Bantams (Silver-laced).—First withheld. Second, W. Spray.

Bantams (Black).—First and Second, A. E. Smith.

Bantams (White).—First and Second, A. E. Smith.

Bantams (any other variety).—First, T. H. D. Bayley, Ickwell House, Biggleswade. Second, A. E. Smith.

Sweepstakes for Game Cocks.—Prize, P. Mason.

Geese (White).—First, J. K. Fowler, Prebendal Farm, Aylesbury (42 lbs.) Second, W. Manfield (39 lbs.). Highly Commended, W. Manfield.

Geese (Grey and Mottled).—First, J. K. Fowler (49 lbs.). Second, Marchioness of Winchester (44 lbs.). Highly Commended, J. K. Fowler.

Ducks (White Aylesbury).—First (20 lbs.) and Second (19 lbs.), J. K. Fowler. Highly Commended, J. K. Fowler; Major F. G. Hassard, Gatcombe House, Hilsea, Hants. Commended, Major F. G. Hassard.

Ducks (any other variety).—First, Rev. T. L. Fellowes. Second, T. H. D. Bayley, Third, Capt. Beardmore. Highly Commended, J. K. Fowler. Commended, C. Bedwell, jun., Iford, near Lewes.

Turkeys.—First, Rev. T. L. Fellowes (24 lbs.). Second, W. Manfield (24 lbs.). Highly Commended, Rev. T. L. Fellowes.

PIGEONS.

(Birds in all Classes bred in 1860.)

Silver Cup, H. Childs, jun., Sherbourne Road, near Birmingham.

Carriers:—*Cocks of any colour, except Blue or Silver.*—First, W. W. Hayne, St. James's Road, Croydon. Second, F. Wiltshire, Derby Terrace, Croydon. Commended, W. W. Hayne; F. Wiltshire; Major F. C. Hassard. (An extraordinary class.) *Hens of any colour, except Blue or Silver.*—First, F. Wiltshire. Second, W. W. Hayne. Commended, W. W. Hayne. (A capital class.) *Blue or Silver Cocks.*—First, T. Colley, Philip's Road, Sheffield. Second, W. W. Hayne. *Blue or Silver Hens.*—First and Second, W. W. Hayne.

Powters:—*Cock of any colour.*—First, F. Wiltshire. Second and Third W. Tegetmeire, Muswell Hill. Commended, W. W. Hayne. *Hens of any colour.*—First, F. Wiltshire. Second and Third, W. W. Hayne.

Short-faced Tumblers:—*Cock of any colour.*—First, F. Wiltshire. Second, Marchioness of Winchester. Third, J. Newman, Southsea.

Tumblers.—Prize, J. W. Edge, Aston New Town, Birmingham.

Balds and Beards.—Prize, F. Wiltshire.

Jacobins.—First, E. Roe, High Street, Salisbury. Second, H. Childs, jun. Commended, F. Wiltshire.

Fantails.—First, H. Childs, jun. Second withheld.

Barbs.—First, F. Wiltshire. Second, P. H. Jones, High Street, Fulham.

Runts.—First, J. H. Craigie. Second, H. Childs, jun. Commended, J. H. Craigie.

Dragons.—First, W. Squire, Hanwell, Middlesex. Second withheld.

Short-faced Antwerps.—First, J. W. Edge. Second withheld.

Owls.—First, H. Morris, Perry Vale, Forest Hill. Second, W. Hewett, jun., Forest Hill.

Nuns.—First, H. Childs, jun. Second withheld.

Turbits.—First, H. Childs, jun. Second, H. Morris.

Trumpeters.—First, H. Childs, jun. Second withheld.

Any other variety.—First, Second, and Fourth, H. Childs, jun. Third, Marchioness of Winchester.

Judges.—*For Poultry*, Mr. Loe, Winchester; and Mr. Bailey, Mount Street, London. *For Pigeons*, Mr. Corker, High Street, Croydon.

Geese for Michaelmas.—The English steamers sailing from Belfast, particularly those trading to Fleetwood, convey weekly to the sister island upwards of a thousand young and lean Geese. These fowls, or most of them, will grace the Michaelmas feast in various parts of England, but especially in London. The wonder is, with those who see them driven through our streets daily in noisy flocks, whence they all come. Strange to say, they are reared in no fen country, and the

great number of them have never floated on water. They are fed specially for Goose-loving appetite, upon some of the barest and bleakest hill-sides in county Derry, above Moneymore, Desertmartin, and Newtownlimavady, where they graze like mountain-sheep or goats, and, like them, have herds. When grown to a suitable size, they are purchased in lots by dealers at 1*s.* to 1*s.* 3*d.* per head, or exported by the breeders themselves. Their drovers to Belfast rarely take advantage of the rail, halting their cackling and hungry charge here and there on a common or other piece of waste ground, and feeding them as sparingly as may be. The profit in England, where they are sold to other dealers, is from 2*s.* to 2*s.* 6*d.* per head. When fattened up—a quick process—they bring from 7*s.* 6*d.* to 9*s.* each in London, and pass for Lincolnshire and Cambridgeshire Geese, which they resemble.—(*Belfast News-Letter.*)

ANOTHER SUFFERER WITH "E. C."

In your number of August 21st, you announced that, should you hear of any more such transactions by the party who victimised "E. C.," you would publish his name and address. Will you kindly give your opinion on the following?

In consequence of the advertisements of R. Tate, of Driffield, I, on 21st July, wrote to him as follows:—

"21st July.

"Wanted, one, two, or three pens of this year's Malay chickens; they must be dark in colour, flat on the head, not less than three months old, and strong, so as to be able to stand a short sea voyage.—Apply, stating price, &c., to yours, &c.,

"Richard Baxter, *Leadenhall Market.*"

I received this answer:—

"Sir,—I can send you a pen of Malay chickens, very good, over three months old, for 30*s.*, and 1*s.* 6*d.* the hamper, and on receipt of a post-office order they shall be forwarded immediately.—Yours truly, "R. Tate."

I then sent him the following letter, and a post-office order for 31*s.* 6*d.*:—

"28th July, 1860.

"Sir,—The price you mention is more than I expected to have to pay for the pen of Malay chickens (cock and two hens). The party who has ordered them of me is a very old Malay fancier and excellent judge of their merits, so I hope you will not send them unless you feel sure that they are pure bred. The cock Black-breasted Red, and the hens dark brown; age over three months. If not approved, me to return them and pay the carriage back. I arrange for this as I am sure you would not wish me to have them on my hands if the customer refuses them; although there is no fear of that, if they are good ones. Upon this condition I send you a post-office order for 31*s.* 6*d.*, and shall look to receive the hamper on Monday. You do not say if you have more than one pen, as I want three pens.

"To R. Tate." "R. Baxter.

Mr. Tate's answer, 29th July, acknowledges post-office order, and promises to send them next day. They did not arrive till 2nd August, and then came a little dirty old basket, broken and partly covered with a dirty piece of sacking, containing three sickly chickens, about six weeks old, and such a specimen; but there, I cannot describe them. I fed the poor little things, sent them off again, and wrote him as follows:—

"Sir,—The birds you sent and which arrived here this day, were 'not Malays;' they were not of the age bargained for; they were not of the stated colours; and there were two cocks out of three. I have been a dealer and fancier above thirty years, and my name is well known through the kingdom. I never saw so absurd a specimen of prize poultry sent to order. I told you that my customer was a good judge, and you have sent things to me which would not fetch 1*s.* each in this Market. I, therefore, fed them and sent them back immediately. It is really too bad to put me to the trouble and expense of carriage. I will thank you to send me a post-office order for the cash back.—

"To Mr. Tate." "Yours, &c., R. Baxter.

Having been delayed thus long, I was obliged to depart for the Continent on my half-yearly trip to visit my customers, and those who are in the habit of consigning goods to me. (The Malays were ordered for the purpose of taking them with me.) When I returned I expected to find the cash sent back; but, oh, no! nothing of the kind. There were a pen of old birds, and a slashing letter telling me that the chicks were bred from prize birds, offering to lay a large sum that I was in error about the two cocks, and informing me that my thirty years had been badly spent if I could not see the merits of the birds he sent, and then modestly concluding, that, as he had sent me a pen of year-old birds, I could send him 5*s.* more in stamps. But not a word about returning my money. On meeting this cool piece of impudence I again wrote him.

"Sir,—When I returned the worthless things you sent me for Malays the time was up, and I was obliged to start for the Continent without that part of the order. I expected on my return that I should find you had returned the money, instead of which you send me a pen of old birds, 'equally worthless to me.' Will you return me my money, and I will send them back? If you do not do so, I assure you I shall not put up with it tamely.—Yours, &c., "R. Baxter."

Mr. Tate does not deign to reply to this; he thinks, no doubt, that it will blow over, but he is mistaken. I have the birds, and am keeping them awaiting his answer. Mr. Tate will find that he must come to a reckoning with me, and if I then find that I am obliged to take to them, I shall be glad to take half-a-crown each for them. I have preserved the basket and old piece of sacking, and should like to show it to the Editors of The Cottage Gardener, if I did not fear offending their sight with the filthy things. It is not worth one halfpenny.—R. Baxter, *Leadenhall Market.*

BURTON-ON-TRENT POULTRY EXHIBITION.

The Staffordshire Agricultural Society this year held their annual Meeting at Burton-on-Trent. The day was, most luckily, one of the very finest throughout the past summer, and, consequently, the attendance of visitors was, perhaps, the most numerous of any that has taken place in the midland counties for some years past. By the care and attention of a most painstaking Committee, everything was carried out in a manner so complete, that not a single expression of dissatisfaction met our ears throughout our visit. The show-yard was constantly well filled, and no small proportion of the assembly were ladies. This proves beyond doubt how peculiarly attractive a portion of such exhibitions is the poultry. We will instance one fact. Only last week a similar agricultural Meeting, but without poultry, was held at Coleshill, which is only 10 miles from Birmingham, whilst Burton is 31½ miles from that dense population. Both places are situated on the same line of rails, and the fares were about triple as much to the Meeting now under consideration, yet thousands of visitors and a great proportion of them ladies with their families, were enjoying themselves at Burton, whilst scarcely a female could be seen at the Coleshill Meeting. Still the weather on both occasions was equally favourable. On making inquiry on the spot, the reason universally assigned for this extraordinary discrepancy in receipts was attributed exclusively to the attractiveness of the poultry department; and a close observation for several hours convinced us that this opinion was undoubtedly a correct one. At this particular season of the year, poultry, however, are scarcely to be expected in perfect plumage; the bulk of the collection was, nevertheless, in far better feather than we anticipated.

The *Game* class was a good one, but not a few cockerels had barely recovered the pull-back consequent on "dubbing." The Grey *Dorkings* were a marvellous class; indeed, it is only rarely at the very largest of our exhibitions we see so good a display. The *Spanish* are not deserving of particular mention, if we except the second-prize pen, which, with age, will, no doubt, improve greatly. The Golden-pencilled were the best of the *Hamburghs*, and the first-prize pen of this variety would, indeed, be hard to beat anywhere, if kept up to their present condition.

The *Geese* and *Turkeys* exhibited by Lady Chesterfield were universally admired, so much so, that the price they were entered at—six guineas each pen—it was thought would not prove prohibitory of sale.

The birds were carefully attended to, and promptly dispatched at the close of the Show.

Game.—First, G. Cargey, Sandon Farm (Black Red). Second, J. Stubbs, Weston Hall, Stafford (Black Red). Highly Commended, G. Cargey; J. B. Chune, Coalbrookdale (Black-breasted Red). Commended, E. Bell, Horninglow Road, Burton (Black-breasted Red); Mrs. Hardy, Dunstall Hall, Burton.

Spanish.—First, G. Cargey, Sandon Farm. Second, The Duke of Sutherland, Trentham Hall (White-faced). Commended, G. Cargey.

Dorkings.—First, Sir H. Desvoeux, Drakelow. Second, G. Cargey, Sandon Farm (Silver Grey). Highly Commended, Sir H. Desvoeux (Silver Grey); G. Cargey (Silver Grey); J. B. Chune, Coalbrookdale; E. Tudman, Ash Grove, Whitchurch (Grey); Lady Chesterfield, Bretby (Grey),

Commended, Lady Chesterfield (Grey); Capt. Townshend, Stretton Hall, Ashby-de-la-Zouch (Grey and White).

COCHIN-CHINA (any variety).—First, T. Stretch, Marsh Lane, Bootle, Liverpool. Second, H. Bates, Harborne Heath, Edgbaston (Silver Cinnamon).

HAMBURGH (Golden-spangled).—First and Second, J. Leech, Liverpool Road, Newcastle.

HAMBURGH (Silver-spangled).—First and Second, G. Cargey, Sandon Farm.

HAMBURGH (Golden or Silver-pencilled).—First, J. B. Chune, Coalbrookdale (Golden-pencilled). Second, J. W. Holland, Sansome Walk, Worcester (Silver-pencilled). Highly Commended, W. Tavenor, Little Aston, Stone (Golden-pencilled).

TURKEYS.—First, Lady Chesterfield, Bretby. Second, J. Coxon, Freeford Farm (Cambridge).

GEESE.—First, Lady Chesterfield, Bretby (White). Second, B. H. Allen, Longcrofts Hall, Burton (Toulouse). Highly Commended, Mrs. A. Baker, Grendon, Atherstone. Commended, Mrs. A. Baker.

DUCKS.—First, G. Cargey, Sandon Farm (White Aylesbury). Second, Mr. A. Baker, Grendon, Atherstone. Commended, Lady Bagot, Blithfield Hall (Aylesbury).

The Judges were Mr. Edward Hewitt, of Spark Brook, near Birmingham; and Mr. Edward Lowe, of Comberford House, near Tamworth.

BRETTON POULTRY SHOW.

BRETTON is near Wakefield, and the Show took place September 6th. The following is a list of the awards :—

COCHIN-CHINA.—First and Second, S. Pickard, Wakefield. *Chickens.*—First, W. Harvey, Sheffield. Second, S. Pickard.

SPANISH.—Prize, J. Dixon, Bradford. *Chickens.*—First, J. Dixon. Second, Rev. J. Powden, Sheffield.

DORKING.—First, S. Pickard. Second, H. Hemsworth. *Chickens.*—First, H. Hansworth. Second, S. Pickard.

HAMBURGH (Golden-spangled).—First, J. Dixon. Second, H. Carter, Holmfirth. *Chickens.*—First, J. Dixon. Second, H. Carter.

HAMBURGH (Silver-spangled).—First, J. Dixon. Second, W. D. Henshall, Huddersfield. *Chickens.*—First, H. Carter. Second, J. Dixon.

HAMBURGH (Golden-pencilled).—First, W. Harvey. Second, W. D. Henshall. *Chickens.*—Prize, J. Dixon.

HAMBURGH (Silver-pencilled).—Prize, J. Dixon. *Chickens.*—Prize, J. Dixon.

POLANDS (Black with White Crests).—Prize, J. Dixon. *Chickens.*—First, J. Dixon. Second, H. Carter.

POLANDS (Golden-spangled).—First and Second, J. Dixon. *Chickens.*—Prize, J. Dixon.

POLANDS (Silver-spangled).—First and Second, J. Dixon. *Chickens.*—First and Second, J. Dixon.

GAME (Black-breasted and other Reds).—First, J. Heeley, Hepworth. Second, T. Dodd, Halifax. *Chickens.*—First, T. Dodd. Second, Messrs. Noble and Ineson.

GAME (White and Piles).—First, J. Crosland, jun., and Vickerman. *Chickens.*—First, J. Heeley. Second, G. Wentworth.

GAME (Black and Brassy-winged).—First, J. Crosland, jun. Second, Messrs. Noble and Ineson. *Chickens.*—First and Second, Messrs. Noble and Ineson.

GAME (Duckwings and other Greys).—First, J. Crosland, jun. Second, S. Schofield. *Chickens.*—First, Messrs. Noble and Ineson. Second, J. Schofield.

BANTAMS (White).—First, S. Pickard. Second, S. Schofield.

BANTAMS (Black).—First, J. Dixon. Second, J. Heeley.

BANTAMS (Silver-laced).—First, W. Harvey. Second, S. Pickard.

BANTAMS (Golden-laced).—First, W. Harvey. Second, J. Crosland, jun.

BANTAMS (Game).—First and Second, J. Crosland, jun.

COCK AND TWO HENS OF ANY DISTINCT BREED.—First, W. Harvey, Second, J. Dixon (Brahmas). *Chickens.*—First, J. Crosland (Black Hamburghs). Second, J. Dixon (Brahmas).

COCK OF ANY BREED.—First, S. Schofield (Game). Second, H. Carter (Hamburgh).

HEN OF ANY BREED.—First, T. Dodd. Second, H. Carter.

GUINEA FOWLS.—First. H. Carter. Second, W. D. Henshall.

DUCKS (Aylesbury).—First, G. Robshaw. Second, G. Farnhill.

DUCKS (Rouen).—First, J. Dixon. Second, S. Pickard. Second, J. Hurst.

GANDER AND TWO GEESE.—First, J. Dixon. Second, J. Fawcett.

TURKEY (Cock and Hen).—First, J. Fawcett. Second, J. Dixon.

The Judges were Mr. Chaloner and others.

LENGTH OF EARS IN RABBITS.—At the Crystal Palace Show in "Class 96, *for length of ears*," the first-prize Rabbits had ears 22½ inches by 4¾ inches; and the second-prize Rabbits, 22¼ by 4½.

SECOND SWARMS.

THE communication in your last publication of your correspondent, "A YOUNG BEE-KEEPER," opens a question as to the probable causes of the unusual interval between the issue of his prime and second swarm. Mr. Golding, one of our most accurate observers, says that he has frequently known, in backward springs, the usual interval extended to eighteen or twenty days, and he particularly instances the year 1829. My immediate object is, however, now directed to that part of the subject relative to the case of the young queens, and the position they at once are commonly stated to occupy in the hive on emerging from the royal cradle. The generally received opinion amongst naturalists is, that they come forth fully matured; for by a wise provision of Nature, the common bees do not permit their escape till, as Huber says, "they are able to fly the instant they are liberated." Dr. Bevan observes, "The young queens are temporarily imprisoned the more completely to insure their first efforts to fly. In furtherance of this, they are provided with capacious cells, which, by enabling them to expand their wings before they emerge, fit them for immediate flight; whereas the workers and drones issue from their cells with folded wings." My own experience fully bears out these positions; but the exceptions to general rules with regard to bees are so common, that I should like to see the subject discussed by those who hold an opposite theory.—H. T.

STICKS IN BEE-HIVES.

A CORRESPONDENT at page 350, who signs, "A YOUNG BEE-KEEPER," complains of having been misled regarding the use of sticks as a support to the combs in bee-hives, and thinks Mr. Taylor's book is in error on the point. I have turned to this subject, both in the "Bee-Keepers' Manual," and in Mr. Payne's "Apiarian's Guide." The latter says, "I should recommend the purchaser to send his own hive to the person of whom he intends to buy a swarm, and to desire him not to put any sticks across the interior, as is a common custom, for they cause much trouble to the bees in forming their combs, and render their extraction almost impossible."

This I know from experience. Mr. Taylor's advice is of a qualified character, and I give his own words. "Sticks or props inside a hive are an annoyance to the bees, presenting a difficulty in extracting the combs, and are never required in a hive made with a proper regard to proportion; in other words, where the combs are not too large to bear their own weight when loaded."

It would seem that the question turns mainly on the point as to the size and depth of your correspondent's hives, of which we are not informed, but only that they are "common straw." Now, no one, that I am aware of, puts sticks within a wooden hive, and the mere material of a properly proportioned hive does not seem to me to affect the principle at issue.—H. K. J., *Hampstead.*

OUR LETTER BOX.

PROFITABLE RABBIT-KEEPING (*Greenhorn*).—There is no good work on the subject. There have been several good papers about the fancy kinds and on general management in our former volumes. For table purposes no breed is so profitable or so hardy as the common grey domestic Rabbit.

"SIDEN-TAILED BIRD." (*F. W. H.*).—Side or crooked tails spring from two causes: first, from a crooked back, and next from injury sustained. But sometimes the defect is only temporary, and arises from having been packed or confined for a long time in a low or small basket, compelling undue depression or twisting round of the tail. After such treatment a cock will carry his tail sideways for days; and if "F. W. H." has ever slept on a lock of hair twisted into some unnatural position, and been called to the consciousness of it by an unwonted pain on awaking, he will understand it. This is not a disqualification, as the bird will recover it; but if the tail has been *always* crooked, or even lopped on one side, the bird is disqualified.

FANCY PIGEONS (*Brahma*).—A few fancy Pigeons may be kept in the garden without injury to the walks, lawn, or flowers; but if they become numerous, or are not sufficiently fed, they will peck the tender leaves off from some plants while young, and would then annoy the gardener by thinning his seed-beds or pecking the young Peas and Cabbage plants. Many ladies admire the Fantails; but tastes differ so much, it is impossible to choose for another. As to accommodation, each pair of Pigeons require two nests of about one foot or ten inches cube in size; and these should be protected from the weather, and so arranged that one pair may not take more than their share. For further directions see "The Pigeon Book for the Many."—B. P. B.

CANARIES TRAVELLING BY RAIL (*W. H.*).—You will find no difficulty in sending your Canaries by rail in a cage well supplied with food and water. In case the water should be spilled it would be advisable to fill the pan with sopped bread. The cage would be better covered with calico. As to the best book on Canaries, that is much more difficult to answer. Bechstein is probably the best; but, being a foreigner, he did not know anything of English fancy breeds. "The Bird-keeper's Guide," a little shilling book, scarcely notices any other variety than the London Fancy. Kidd's shilling treatise is written in the fashionable sentimental style, and it is very difficult to sift the sense from the chaff. We shall endeavour to supply the want by the series publishing in THE COTTAGE GARDENER, and beg of fanciers to help us.—B. P. B.

TEACHING A STARLING TO TALK AND WHISTLE (*A Subscriber*).—It is a popular error to suppose that slitting a bird's tongue with a piece of silver will make it talk: it is far more likely to cause the death of the poor sufferer. Some bird-fanciers, however, maintain that clipping the skin beneath the tongue gives it more play, and that the bird talks better for it; but as the bird talks more in the throat than by the tongue, I am at a loss to understand the reason. We have, however, raised birds that have talked and never had anything done to their tongues. The birds should be made familiar; and the words and sentences it is required they should speak should be pronounced to them clearly, and this should be continued and frequently repeated many times a-day for several months.—B. P. B.